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LECTURES ON SURGERY, MEDICAL AND OPERATIVE,

DELIVERED AT

St. Bartholomew's Hospital;

BY MR. LAWRENCE.

Lecture XLVII.

Simple Fractures.—Displacements.—Diagnosis.—Prognosis.—Union, or Non-Union, during Utero-Gestation.—Treatment.—Diet.—Period of Consolidation.

Fractures.

I MENTIONED to you, Gentlemen, in the last lecture, that the resources of nature in the union of fractured bones, are often shown in a very striking manner, in cases where the consolidation of a fracture does not go on exactly according to the regular course; where, in fact, one end of the broken bone overlaps the other, so that the two *ride*, as the phrase is, instead of the ends being in proper apposition. The ends are kept in this position by means of the ossification of the swelling which I mentioned to you, under the term provisional, or temporary callus, and thus they become permanently fixed. You here see a remarkable example of this.

I also mentioned to you, that when the ends of bone do not approximate, the intervening soft substance admits of ossific consolidation, so that the bone becomes sufficiently strengthened at the point of fracture to admit of the usual motions and functions of that part of the frame. What I show you now is a case of fracture of the bones of the leg. The two extremities of the broken tibia, you will observe, are by no means in contact, but there is a *cross bar* thrown out before and behind, sufficient for their support. Here is another specimen, where the superior part of the bone is united to the inferior by this sort of bar, where a considerable portion of the original bone has been lost in consequence of the injury having been a comminuted fracture. Still this was sufficiently strong to support the weight of the body. There are other examples also before you. So that you observe nature does a great deal in these cases towards repairing injuries, even, too, where the injury appears unfavourable for the exertion of her powers. This, therefore, should encourage, or rather lead, us to take all possible means of bringing the fractured ends of bone as nearly as possible into apposition, in order to avail ourselves of the full extent of those powers which nature exerts towards a cure.

I spoke to you, in the last lecture, of some varieties in the description of fractures—of comminuted fracture—where there is not merely a simple division of the bone, but a breaking into several fragments of a certain portion of the bone, and complete disconnection of the ends. I also spoke to you of the difference between longitudinal, transverse, and oblique fractures, and I observed, that longitudinal fractures were very rare. Now, in this specimen, the main fracture has taken place at about the middle of the thigh, but the bone has been splintered, and the fissure has extended longitudinally to the inferior half of the femur, so as to run into the knee-joint. Here is another specimen, where the fracture runs through one of the condyles of the knee. This is another partial fracture, where the upper end of the bone is broken longitudinally for the length of five or six inches. In all these instances you can observe the mode in which the injury has been repaired, and that the reparation has been very efficient.

Causes.—I spoke to you, in the last lecture also, of the causes of fractures, but amongst these, I omitted to mention muscular contraction. At first, you would suppose, when comparing the softness of muscle with the hard nature of bone, that the power of contraction in the former would not be adequate to produce separation in the substance of a strong bone. We find, however, that such an effect is produced. Fracture of the patella is occasioned almost invariably, simply in consequence of the powerful contraction of the muscles, which are connected with that bone. The ole-

cranon may be broken by the contraction of the muscles which belong to it, and there are even instances of fracture of the long bones of the body, in consequence of the powerful action of the muscles attached to them. A man, for example, may have the os humeri fractured in consequence of very considerable muscular exertion. A person making a great effort in striking a blow may have his arm broken without any external violence being directed against the bone. This is very rare, but still it occasionally takes place, and probably the muscles have thus a good deal to do with fractures in situations where we might suppose the injury to have occurred simply in consequence of external force acting immediately upon the substance of the bone.

Symptoms.—I have next to speak to you of the *effects* which fractures produce—of the change produced in the state of the limb—of the *symptoms*, as we call them, or the external appearances that enable us to decide on the existence of fracture.

Some of the effects of fracture are *immediate*, taking place directly after the accident; some are remote. The first and most immediate effect is inability, generally complete inability, to use the limb. A person walking or running falls to the ground and breaks one of his thigh-bones; he attempts to rise and stand, but he finds himself unable to do so; he cannot support his own weight, or rest on the limb. He is aware of what has taken place, and says immediately, I have broken my thigh-bone. Now, when a patient thus expresses himself, and shows evidently that he cannot use the limb, you may be tolerably certain that the bone is broken; it is seldom otherwise. In the case of a bruise, or violent injury to the soft parts only, the patient can rise and support himself; but in the case of fracture it is different, and the patient most commonly is sensible that the bone has given way; he has felt a breaking, or cracking, within the limb. This inability to use the limb after a fracture, is of course more complete after the fracture of some bones than after that of others. In fracture of the femur, or the os brachii, this effect is more decided than in fracture of one of the bones of the forearm or of the leg, because when one of the latter is broken, the other, in some measure, enables the patient to use the limb. The observation, therefore, applies more particularly to fractures occurring in that part of the limb which has a single bone only, than where there are two bones.

Then, generally, *a change of figure* is observed in the limb. It is shortened, or it is bent, or it presents some disfiguration externally, and that too quite suddenly. This is more particularly observable in fracture of the thigh and upper arm; that is, where there is only a single bone the fracture has a more remarkable appearance than in the forearm or the leg, where you may have one bone broken without any general change in the shape or figure of the limb. Then, thirdly, on moving the broken bone, the fractured ends *rub* against each other, and produce a *grating sensation*, which is perceptible to the patient himself, and which is very sensible to the hand of the surgeon when making examination. This sensation is technically called *crepitus*, and when that is felt, you become quite certain that the bone is broken. This is to be regarded as the *sure* pathognomonic sign. It must be observed, however, that fracture may take place, and the fragments of the bone be thrown into such relative situations, as not to rub or grate when you move the limb. They may be displaced, so as to lie at a greater or less distance, or some soft parts may intervene, so as to prevent the grating. The mere fact, therefore, that you cannot feel a crepitus, does not prove that fracture has not occurred, although the existence of crepitus is certainly the most satisfactory proof of the accident. These are the *primary* and immediate symptoms of fracture.

Displacements.—When a bone is broken, it very commonly happens, that the fractured ends become *displaced*, and this displacement may either take place immediately as a direct consequence of the accident producing the fracture, or it may occur at some distance of time after the injury has been received. The displacement may be *primary* or *immediate*, or it may be *secondary* or *remote*. If a limb be broken by a carriage-wheel, or by the fall of a heavy substance, the fracture may be accompanied by a displacement. The same injury that breaks the bone, may displace one of the fragments. Very often, however, the bones are not displaced immediately, but they become so at a longer or shorter period of time afterwards, in consequence of the action of the muscles connected with the fragments; muscular action being the principal cause of displacement between the ends of fractured bones. It is very true that the weight of the limb,—the weight of the part furthest from the trunk, may cause displacement. Supposing, for instance, the arm to be held out horizontally, and the humerus to be broken, the weight of the further extremity would occasion displacement of that part of the arm. But there are many instances in which the bone is not so situated as to undergo displacement from this cause; but where the muscles connected with the lower part, by their contraction gradually displace the fragments afterwards.

The ends of fractures may be displaced in *different* ways. First, the displacement may

occur in the direction of the *axis* of the limb, just as in the case of the humerus. If the humerus were broken, and the arm held out horizontally, the lower part would sink so, that the limb would present an angular prominence in front, and a corresponding hollow behind, constituting a displacement in the direction of the axis. Such a displacement as this of course cannot occur when one of two bones is broken, when one of those of the fore-arm, for instance, or the leg, is fractured; and, indeed, most of the various displacements are observed only in the case of fracture of the larger bones; that is, in fractures of a part of the limb containing a single bone only.

Then the bone may be displaced in the direction of the length of the limb, producing the effect you here see, so that the one end of the bone overlaps the other. This is a displacement producing an unnatural *projection*, or thickness at one part of the limb, and more particularly a *shortening* of the limb. When you trace with your hand the outline of the bone, carrying your fingers from the upper extremity, or from that part which is connected with the trunk, downwards along the bone to the point at which the fracture has occurred, you come to an abrupt termination; you find a rising of the bone, in consequence of the manner in which the inferior fragment has been drawn upwards; this has been called the *rising end* of a bone, for its appearance on a first examination, is that of an unnatural projection where the fracture has occurred. In truth, however, this is not the *rising* end of the bone; in other words, this end does not rise unnaturally. The upper end retains its natural position, though appearing to rise in consequence of the other extremity being depressed, pushed out of the proper situation, retracted, and drawn behind the superior end.

The ends may be displaced in the *circumference* of the bone; and this is a displacement which affects the fragment most remote from the trunk. The portion which is connected with the trunk remains in its position, in consequence of the surrounding connections; but the portion of bone below the fracture becomes twisted inwards or outwards. For example, in fracture of the thigh-bone, suppose the limb to be left to itself, and to be broken in the middle, the inferior part of the limb will be turned outwards, altogether taking that direction in which the natural action of the stronger muscles will place it. The inferior portion is no longer regulated by the muscles of the upper part of the bone, but obeys the action of the strongest muscles attached to it; the question, therefore, as to the position of the lower part of the limb will be simply this,—What is the situation in which the action of the more powerful muscles will place that part? The action is, to turn the lower part of the thigh, the leg, and the foot, outwards—to put the foot into the everted position. Such is the effect of a complete displacement in the circumference of the bone.

Again, the broken bone may be displaced laterally. Supposing the bone is broken through quite transversely, you may have the two ends in apposition, or corresponding by one half of the circumference, or by their edges, so that there would be a lateral displacement. These are the various ways in which bones may be displaced in cases of fracture, more particularly simple fracture.

I have mentioned to you, that these displacements are principally effected by the action of the muscles on the portion of bone furthest from the body, in conjunction with the effect produced by the weight of the lower portion of the limb. It is possible, however, for a broken bone to be displaced in consequence of the muscles which are connected with the fragment that is still attached to the trunk. Supposing a fracture to take place in the upper part of the thigh-bone, you will find that the superior part will be drawn upwards by the action of the muscles which come out of the pelvis, and are attached to the trochanter minor. This forms a complete elbow. Here is an example of the kind. It is a very powerful cause of displacement in fracture of the upper third of the thigh bone. The lower end of the bone has not been drawn up so as to be placed behind the superior fragment; therefore, in this instance (a specimen of which I show you, where the fracture has taken place even below the middle of the thigh), there is no actual shortening, so far as overlapping of the ends of the bone is concerned; but the angle which is made is owing to the superior fragment having been drawn upwards and forwards by the action of the muscles. In the same way, when fractures take place near the upper end of the humerus, the tendon of the latissimus dorsi, the tendon of the teres major, and so on, may displace the upper end of the bone, and occasion an angle somewhat similar to the one I now show you in the case of the thigh-bone. In the majority of instances, however, the displacement takes place in the inferior fragment, or that part of the bone which is the most remote from the trunk. All these examples on the table show, that the lower portion of the bone is drawn upwards and behind the superior portion. Here is a fracture of the thigh-bone, rather lower down, and you observe that the inferior fragment is drawn up a little to the outside of the superior portion.

Diagnosis.—I have not much to say

respecting the *diagnosis* of fractures; that is, the distinction of fractures from other accidents, for the peculiar consequences which denote the existence of fracture are so clear and unequivocal, that there is very little fear of confounding fractures with other accidents. However, when fractures take place in the neighbourhood of joints, they may be confounded with dislocations, and in instances of some joints there is great obscurity. The circumstances, however, on which the distinction depends, will be better appreciated by you when we come to speak of particular dislocations. Generally, it may be observed, in cases of dislocation there is much greater stiffness, greater inability to move the limb; I do not speak of the power of moving the limb by the patient himself, but a greater inability to effect motion on the part of the person examining. In a fracture near a joint, the surgeon can move the limb, occasioning pain, to be sure, but with much greater facility than if dislocation had occurred.

There is a kind of dislocation, which is closely analogous to fracture, though very rare, which must be treated as a fracture; it is a separation of the bone from its epiphysis. The ends of bone in young persons are cartilaginous, or united to a piece of cartilage; that is, the bone is not one single osseous piece throughout. It is possible that violence may separate the bone from this cartilage, that is, at its epiphysis; but there may, perhaps, be no distinguishing between this accident and what we call fracture, therefore we need not say much more upon .

The injury, however, can only take place in young subjects, for after a certain age the cartilaginous union is consolidated, so that the bone consists of one entire osseous piece.

Prognosis.—Fractures are so various, being according to the extent of the injury, according to the number and importance of the parts involved, according to the age of the individual, and the circumstances under which he may be placed at the time, that the *prognosis*, respecting the issue of the case, must be also subject to great variety. Nothing can be more simple than mere fracture of the bone, occurring in a healthy individual, attended with the least possible contusion or laceration of the soft part. We know perfectly well that, under judicious and simple management, such an injury will be completely and effectually remedied, and the patient will suffer no very serious inconvenience as regards the subsequent use of the limb. On the contrary, in cases where a bone has been broken and comminuted, where the soft parts are considerably bruised and lacerated, where there is also injury of arteries and of joints, more especially when occurring in elderly persons, or in individuals of bad or unsound constitutions, and under circumstances where the patient will not have all the assistance, comforts, and attention necessary for his restoration, there is great danger of subsequent imperfection in the limb; or, in fact, there is great danger to life, both at the moment and ultimately. So that patients are liable to every variety of consequence, according as the injury is very simple and manageable, or one that involves immediate loss of, or danger to life, or very serious effects on the limb, supposing the individual to recover from the accident. There are many cases of fracture in which the issue is doubtful, where the case is of the worst kind, and where we entertain an unfavourable opinion from its commencement. Where fracture takes place in the neighbourhood of a joint, we do not always know whether it extends into the joint or not. In fractures, where some considerable vessel may be involved, there is often great difficulty in accurately discriminating it. There are many of those instances, in which we are under great doubt at the time the accidents occur, and where we find it necessary to speak very guardedly as to the result. There are several cases where, though we entertain confident expectation that the injury to the limb will be repaired, and some use of it restored, yet we find it impossible to prevent some deformity, even under the most judicious and careful management. In some cases, the exact apposition of the broken ends of the bone is difficult to be accomplished, and some difference in the length, or some alteration in the figure of the limb, is almost inevitable. Frequently, in consequence of an alteration in the length of the limb, considerable stiffness occurs; the free play of the muscles about the broken bone is impeded; the uniformity of the limb depending on the apposition of the ends of the broken bone is destroyed, a stiffness in the articulations is produced; so that, in many instances, more especially with fractures in the neighbourhood of the joints, great care and caution are required in giving an opinion.

It has been said, that fractures will not unite in pregnant women; that they remain ununited until the period of utero-gestation is at an end, and that then the fracture becomes consolidated by osseous union. It is not common to meet with fractures in pregnant females, so that, perhaps, one cannot say from experience what is the fact. In many instances, however, it may be safely stated, that fractures in pregnant women have united just as they have been repaired in females under other circumstances; so that I doubt altogether, for my own part, the accuracy of that common notion. I have never seen an instance of fracture occurring

in a pregnant woman where bone has remained ununited.

Treatment of Simple Fractures.—I come next to speak to you, Gentlemen, of the *treatment* of simple fractures. I have already mentioned to you, generally, the indications of the treatment of fractures; these are to remove the broken extremities of the bone from the unnatural position, into which they may be thrown, to bring them into exact apposition, and to retain them in that state by suitable mechanical means; to keep them as nearly as possible, perfectly at rest, and to combine with this, appropriate treatment for the various complications, or occasional symptoms, which may attend the case.

Now, the circumstance of retaining the ends of the broken bone in apposition, and of keeping them quietly in that state, requires of course that the patient should remain in a given position for a length of time; usually it is found necessary to confine the patient to bed during the consolidation of a fracture. It is necessary, therefore, that the bed in question should possess certain properties or qualities calculated to ensure the objects we have in view. At all events, it is very desirable that a patient who has to keep his bed for a number of weeks, should be comfortably and pleasantly situated there.

So far as the treatment of the fracture goes, what we want is, that the limb (more especially the lower limb, where confinement to bed becomes necessary) should be uniformly and regularly supported. We want a level surface for the limb to rest upon which will support it equally in its whole length. It is, therefore, by no means advantageous to put a patient with a fractured limb upon a feather bed, because if you do, the heaviest part of the body, the trunk, sinks—depresses the surface, forms a hole in the middle, and, perhaps, occasions the limb to be placed upon an inclined plane, so that the weight of the different parts tends to produce, or at any rate, to favour the recurrence of displacement in the fractured ends. A hair mattress, or, at least, a bed with just the requisite softness for the comfort of the patient, and sufficient firmness to retain a tolerably level surface, must, therefore, be the best. The support of the leg underneath must also be uniform. It will be of no use for you to have a firm mattress if the article on which the mattress is placed gives way; therefore the sacking which is commonly found in bedsteads, and on which the bedding rests, is not well calculated for these cases, because that sacking gives way in the middle. It is preferable, therefore, to form a solid basis in the middle of the bedstead by placing pieces of board across it.

Then having the patient placed on a bed of this kind, and having removed the dress, which, of course, you should do in the gentlest manner, cutting off the portions of dress that cannot be removed without injury to the limb, you proceed in the first instance to place the limb as nearly as possible in its natural position; and in doing this you accomplish what persons in common language call, the *setting* of the bone; the object being to draw the ends out of their unnatural position, and to bring them into regular contact.

This process, which by the vulgar is called the setting of the bone, divides itself, in learned language, into three parts;—*extension*, *counter-extension*, and *coaptation*. If the ends of the broken bone overlap each other, the object of extension will be to draw the inferior fragment of the bone downwards, till it comes to the level of the superior part. An assistant, therefore, takes the inferior end of the limb and draws it out straight, with a view to disengage it from the superior portion. If he were to draw the lower end of the bone while no force was applied to hold the upper part, the whole limb would obey the extension so applied; and instead of having only the inferior end pulled out, you would have the whole limb and pelvis drawn down. Now, in order that this extension should be properly applied, you must have the superior end fixed, and the power applied for this purpose is called the counter-extension.

Now, there are two modes of applying this force; you may either apply the extending power to the inferior extremity of the broken bone itself, or you may apply it to a portion of the limb situated beyond that. For example, in the case of a broken thigh you may apply the extending power to the inferior portion of the thigh, or to the foot, and you apply the counter-extension to the pelvis or to a portion of the limb about the seat of injury. The French consider it important not to apply the force—the extension or counter-extension, to the part that has suffered, but to the neighbouring parts. They state that the extension and counter-extension hurt the muscles of the limb, and thus add to the pain and to the displacement of the fracture. The object, however, may be accomplished either in one way or the other.

Well, then, when the displacement of the fragments is remedied, the parts, perhaps, come into proper apposition; that is, the process called technically, *coaptation*. Now the truth is, that in many cases this is not required at all, for the ends of the bone are not displaced, therefore, of course, you do not want to bring them into apposition. In the case of a fracture of the tibia or fibula, the ends of the bone are not separated, and a *setting* of the bone, therefore, is not neces-

sary. However, patients themselves, those who are ignorant of these subjects, imagine that in every case where a broken bone has occurred, there must be a *setting* of the bone; consequently they and their friends are always extremely anxious to know whether the bone is set or not; and they think that the setting is likely to be attended with considerable pain, and, in fact, unless they are pulled about a good deal, they are always afraid no setting has taken place. (*Laughter.*) Every one who has attended to these fractures must know, that the patients have been anxious for a very considerable time afterwards, to know whether the setting of the bone has been properly accomplished. It is, therefore, right, that upon this point you should set at rest the minds of patients who may not have had what they consider a *reasonable* share of suffering on the occasion. (*Laughter.*)

Then when the fracture is replaced as well as we can accomplish it, the next consideration is,—What are the means by which the broken bone can be retained in its situation? There are various means which may be adopted for this purpose. It has been a very common practice in this country—it was always the practice followed, and, indeed, introduced by Mr. Pott, to place over the limb in the situation in which the fracture has occurred, a piece of soap plaster, or a portion of some glutinous substance. If any thing of that kind should be employed, the soap plaster, which is mild and unirritating, may be very properly used. It produces no eruption or irritation of the skin, and, indeed, very frequently it is a provision against, or a prevention of, irritation produced by bandaging, and, therefore, it may be well to employ it. Then bandages and other mechanical means are used to keep the limb at rest. With respect to bandages, sometimes the *circular* bandage is put round the limb; that is, a roller carried round and round in the ordinary way. In other instances, bandages have been used, which are now hardly employed. There have been many sorts proposed. Here is what is called the *eighteen-tailed* bandage; it consists of a broad longitudinal strip, with transverse strips sewn to it of different lengths, so that they can be folded over each other in a way to inclose the limb, and to admit of a considerable degree of force being used; at the same time it can be applied or undone without elevating the limb, or giving that degree of motion necessary in using the circular bandage. The bandage of Scultetus is a many-tailed bandage, in which the strips or tails are separate, so that you can take out some of the pieces when they become soiled, and replace them without much difficulty; but that cannot be done with the other bandages in which the pieces are sewn together. Now the circular bandages are not in general well adapted to the treatment of fracture. The motion of the limb, which is necessary for their application, is injurious. It is attended with a displacement of the fractured ends of the bone. In some instances, it tends very much to displace the ends of the bone; and, on a variety of accounts, the circular bandage is liable to objection. It is liable to the objection I mentioned to you when speaking of bandages applied to parts that have received serious injury; that is, when the limb swells in consequence of the injury, the pressure of the bandage adds much to the pain, and exposes the patient to a more serious consequence; so that, generally speaking, we may consider the circular bandage as now out of use. The eighteen-tailed bandage, or the bandage of Scultetus, is preferable, and the pressure which is produced, assists materially in keeping the broken ends in apposition. It is also believed by many persons, that the general pressure of bandages upon the muscles tends to diminish the probability of spasm or convulsive action—tends to keep the muscles quiet. In fact it is well known, that when a person experiences any such action of the muscles of the limb as is very closely allied to spasm, that effect does not come on during the application of the eighteen-tailed bandage, the pressure of which serves to keep off this action permanently. It is a part, therefore, of the apparatus, or dressing of a fracture, which generally ought not to be dispensed with. Then with respect to the confinement of the bone and its maintenance in a quiet state, this is to be accomplished partly by the position in which the limb is placed, and partly by the application of those mechanical supports which are called splints. In each fracture you are to consider what are the causes by which displacement is likely to be accomplished; and you are to choose the position (as far as a choice can be made) in which those powers will act with the least effect. Now, in fractures of the lower extremity, particularly in those of the thigh, and also in some of the fractures of the leg, it has been found that the half-bent position of the thigh is the best, and also that the patient is most comfortable when laid in a bed, which admits of the trunk of the body being put in a straight position, and presents at the lower part a double-inclined plane. A bed of this kind, very convenient for fractures of the lower extremity, when patients cannot be moved without considerable pain and inconvenience for the discharge of their motions and urine, has been long used by Mr. Earle, and is very convenient in several cases. Although consisting of a single bed, all on one level, yet it is divided into two parts by a hinge, so that the upper part

can be raised to bring the trunk into a half-erect, or an erect position. The lower half is again divided into two halves by a hinge, which can be moved so as to present a double-inclined plane. To the lower half of the inferior portion, there is a foot-board attached. A similar kind of bed has been devised by Mr. Amesbury, a gentleman who has paid considerable attention to fractures, particularly of the lower limbs. And the mechanical assistance which these beds afford is of considerable use, particularly in fractures of the lower extremities. The position is made a considerable point of attention in their construction, with a view to maintaining the fractured ends in apposition.

The splints are apparatuses or contrivances, constructed of substances more or less inflexible, for the purpose of giving a certain degree of support to the limb. They are generally made of wood, or japanned iron, or paste-board—materials that possess a requisite firmness, and which are made to accommodate to the shape of the limb. These are meant wholly to surround the limb, or to encompass it at certain parts, so as to admit, as it were, of the encasement of the limb. They should be sufficiently long not only to embrace the fractured member, but to extend beyond the joints which are connected to the upper and lower ends of the broken bone. If you have to confine mechanically any particular bone of the body, you must apply the splints I now speak of, not only to that bone, but extend them to the two neighbouring joints, because the motion of either of those joints will produce motion of the end of the bone. In the case of a fractured leg, therefore, the splints should extend beyond the knee at the one end, and beyond the ancle at the other. In fact, in fractures of the lower extremity, it is very often found necessary to have splints that will confine the whole of the lower limb. You find that you cannot retain a part in a state of perfect immobility, without embracing the whole extent of the limb from the pelvis downwards.

Now, as these hard substances, called splints, cannot be immediately applied to the limb, because they might irritate, bruise, or injure the parts, you must protect the limb by soft padding, which will take off the pressure of the splints; and, in fact, the inequality of the surface requires that there should be something interposed to bring the limb as nearly as possible to one regular surface; that, by thus rendering the face of the member level to the splints, there may be an uniform pressure over the limb. For this purpose you have pads of tow, or carded wool, wrapped up in linen. If these cannot be obtained, pads may be formed with bran, and if you have the linen bag into which the bran is put three parts filled, you can press the bran from one part to another, so as to fill up every inequality of surface. The French, who are much more neat in their dressings of fractures than we, are in the habit of employing a substance called *balle d'avoine* which consists of the external husks of the oat, that is, the thin chaff springing from the ear. This material is very light, and, like bran, can be rolled from one part of the pad to another, which, therefore, you can have of any shape or size, according to the form of the limb. The object, however, in using any padding of this kind, is to obtain a soft lining to the splints, that they may not bruise, rub, or excoriate, and that from the evenness of the surface to which they are applied, the pressure may be distributed generally over the limb. Compresses of tow, or linen, may be thus employed, according to the various exigencies of the case.

Then having replaced the fractured ends of the bone in the way I have mentioned, having covered the fractured extremities with soap plaster, having applied the eighteen-tailed bandage, and having placed the patient on a bed suitably constructed, you have done what is necessary for the treatment of a simple fracture.

I have already mentioned that the consolidation of such an injury requires a considerable period of time; that the temporary union, the provisional callus, which holds the ends of the bone together, is not fully ossified before the fortieth, fiftieth, or sixtieth day, and that the permanent and definite callus, that is, the osseous consolidation of the broken ends, does not take place till a much later period.

The most perfect mode of treating a fracture would be that (if we could accomplish it) in which we should replace the fractured ends of the bone, put on the apparatus I have mentioned, and let the limb remain without once disturbing it until the fracture became consolidated. In fact if there be no external wound, and no particular inconvenience, and if the apparatus have been well applied, there is no occasion for undoing it when once it has been firmly done up; there is no reason why it should not remain as you have originally placed it until the consolidation is fully effected. In general, however, we are hardly fortunate enough to accomplish this. The patient experiences pain or inconvenience from some part of the apparatus—we undo it; we endeavour to remedy the inconvenience; we find the portions of fractured bone are not in their proper position; we replace them; we undo the apparatus again, and afford all the attentions that are requisite, and we continue those attentions until the cure is effected.

The diet of a patient, supposing him to be confined to bed and using no kind of

exercise, need not be very nutritious; he need not live very generously while lying in bed in consequence of a fracture. In the early period you may reasonably expect more or less swelling in the neighbourhood of the injury; and patients should then be placed on a light diet, taking sparingly of animal food, or, perhaps, not taking animal food at all. But when the first few days have passed, and the risk of inflammation is removed, we need not confine the individual to a particularly low diet, although light food in moderate quantity is necessary throughout, except under particular circumstances. If any thing like inflammatory action come on, of course reduced diet is necessary with the employment of other means calculated to check the disturbance. It is necessary to take care that the bowels be not confined; but it is by no means advantageous, on the contrary it is very inconvenient, to purge patients much in the early period of a fracture. We should not purge them actively and repeatedly, because the motions of the body are attended with inconvenience from the movements of the limb and the probable displacement of the fracture. After attending, therefore, to the proper evacuation of the bowels, do not go beyond that, and by no means give aperients that would irritate.

You will probably inquire what is the length of time within which the fracture may be consolidated? Now, it has been very generally stated that this requires forty days or about six weeks. This, however, as you might suppose, *a priori*, depends upon circumstances, and will, therefore, be different in different instances. We may state that the consolidation of a fracture may require from a fortnight to seven or eight weeks. It will take place in less than a fortnight in children, in whom the processes of growth are extremely rapid. Bone, therefore, becomes consolidated very quickly, and fractures are readily united in them, indeed, much sooner than one would expect. In elderly persons you often find, even at the end of six or seven weeks, that the ends of the bone are not united, that they are quite moveable, and that you are obliged to continue to subject them for a long time to the means necessary for the consolidation of the fracture. In general, I should observe too, with respect to children, we might fear that deformity would ensue from our inability, in many instances, to restrain them as we could wish. The movements of young subjects at first occasion them considerable pain, and from this cause, I suppose, it is generally found that they do very well. We cannot, however, keep the splints or bandages on as we should like, and after a few days the little patients will begin to move about; I suppose they do not do so until they feel that it can be accomplished without much inconvenience, and when that is the case I fancy they move about without producing much injury to the parts, for we usually observe that fractures do very well in children.

The subject of fractures shall be continued in the next lecture.

Lecture XLVIII.

Modifications of Fracture Bandages—ditto Splints—Treatment of Simple Fractures—Ecchymosis—Ununited Fractures—Treatment of Compound Fractures—What is a proper case for Amputation?—Period of Amputating—Propriety of Bleeding generally—Exfoliations—Suppurations—Amputation if the Fracture extend into a Joint?—Period of Consolidation.

I spoke to you, Gentlemen, in the last lecture, of the different modifications of bandages that are applied to broken limbs. The *eighteen-tailed* bandage is made of three broad pieces of linen, which are sewn to a straight piece transversely, and the second piece overlaps the first by about one half, and the third piece overlaps the middle piece in the same way. Then those pieces being divided at each end into three small portions, there are, in the whole, eighteen ends or *tails*. Now each of the three portions of linen must be of sufficient length to encircle the limb once and a half, and beginning the application of the bandage from below, the successive portions overlap so as to enable us to apply a pretty regular pressure on the limb. The bandage we more commonly use now is very similar to this, but it is made up of pieces *separate* in their whole length, and of an indefinite number. These are sewn together on a straight piece in the same way, and this is called the *many-tailed* bandage. The bandage of *Scultetus* consists simply of a number of these pieces not united together. These are the three modifications of bandage, chiefly used in broken limbs.

I mentioned to you different materials of which splints are composed. What I now show you is the ordinary form of a *wooden splint* for the leg, and we find it necessary to apply two of this sort—one adapted to the external, and the other to the internal side of the leg. This a similar-shaped splint, but made of japanned iron. In using either of these splints, it is necessary that the splints should not be much hollowed out, but they should be of considerable width, nearly flat. If you were to apply a splint as much hollowed as the one I now show you, the edge would press injuriously on the limb. These splints which I now show you, are called lined splints, made of narrow

pieces of deal, connected by leather glued on the inner surface. These are convenient on many occasions, because they accommodate themselves to the shape of the limb.

When a limb has experienced considerable bruises, in conjunction with a fracture of the bone, when consequently blood may have been extensively effused into the cellular texture, and the limb greatly swollen, you may anticipate the occurrence of inflammation, just as you would do from a similar injury of soft parts unconnected with fracture. In the latter case, you would not think of binding the limb firmly with bandages, and of applying wooden or iron machinery tightly embracing it. You would think that course of proceeding likely to aggravate the inflammation. In the first place, then, you must put out of consideration the circumstance of the fracture, and treat the case as you would do a similar injury of the soft parts without fracture; and having reduced the ecchymosis and swelling, you might proceed to the application of an apparatus proper for a fracture. In such a case, then, in the first instance, lay the limb in a position most agreeable to the patient's feelings; and generally that is in the half-bent state, such as people throw the limbs into ordinarily when they go to sleep. Apply leeches to the part and cold washes. It may be necessary to pursue this treatment some days before it is right to apply the apparatus suitable to a case of fracture. The same reasoning applies, if the limb should swell after the application of the fracture apparatus. The patient sometimes feels the apparatus unpleasant, and occasionally it is necessary to undo it in the day-time; to leave the limb quietly on a splint, use cold applications, and then apply the apparatus again at night, in order to prevent the spasmodic twitchings which are likely to occur. With respect to that particular circumstance, which is often productive of considerable inconvenience—spasmodic twitchings, involuntary motions, by which the ends of the broken bone are made to grate against each other, we find it very difficult sometimes to overcome them. The more completely, however, we can keep off the inflammation, the less likely is it that the patient will be troubled in this way; when the inflammation is removed, the more exactly we adapt the fractured ends of the bone—the more immoveably the fragments are kept, the less likelihood is there of spasm.

I believe you will find but little advantage from the means supposed to have the direct power of allaying spasm—opium, or other things of that kind.

Frequently the skin is very seriously bruised in cases of fracture. *Ecchymosis* takes place, and the external surface is of a deep livid colour; and the injury to the skin is often so considerable, that the minute vessels, on the surface, pour out a serous fluid, and vesications of the cuticle occur. These vesications often contain a turbid or darkish fluid—sometimes a livid or reddish fluid; and the occurrence of such vesications, combined with the deep-red or livid appearance of the ecchymosed or bruised skin, often leads persons to apprehend that mortification has commenced, or is about to take place. The appearances, indeed, are sometimes deceptive; but you will find that, however extensive this livid and dark state of the skin may be, and however numerous the vesications, yet they are simply the consequence of bruises of the skin, and that they do not portend mortification. All that is necessary is to prick the vesications, let out the fluid; and lay over the part simple dressing—spermaceti spread on lint.

Ununited Fracture.—After a fractured limb has been kept in a suitable apparatus for the length of time ordinarily found sufficient for the union of the bone, we sometimes discover, on removing the apparatus, that the bone has not united. Occasionally we find the fracture quite loose—the limb quite moveable in the situation where the fracture has taken place; and sometimes such a want of union continues for weeks, and even for months; and often, at the expiration of a year or more, a fracture will not be consolidated—it is then called a case of *ununited fracture*. This, of course, is a very unpleasant occurrence, both to the surgeon and to the patient. The limb is rendered useless, or nearly so. It bends at the seat of fracture, just as if there were a *joint* at that part. Indeed, on examining these cases occasionally, a kind of smooth surface to the bone is found to exist; and there is a condensed substance surrounding the ununited ends of the bone, something like an imperfect joint. More commonly, however, the bones are found connected by condensed cellular membrane, or a species of ligamentous membrane, and there is no joint produced.

It is important to ascertain in these cases, whether the want of union arises from any thing peculiar in the nature of the accident, to the peculiarity of constitution, or to some want of care and attention—something inefficient in the treatment of the case. I apprehend, if we take all the cases of want of union, we shall find more reason for concluding that the circumstance arises from the latter cause, than from either of the two former causes. Mr. Amesbury, who has paid particular attention to fractures, and who has published some observations very well worthy of your attention, has related the result of his experience upon the subject of ununited fractures; and from experience,

he expresses himself very decidedly, that it is owing to the inefficient apposition, and mode of retaining in contact the broken ends of the bone; consequently, the treatment that we should follow to avoid the possibility of this occurrence, consists rather in the careful management of fractures in the first instance, than in any other course of proceeding. Mr. Amesbury says, that in a great proportion of the cases which have come under his care, when a properly-adjusted apparatus was applied, when the broken ends of the bone were brought into accurate contact, and kept in apposition; the fracture has generally united within a moderate length of time. But in cases where somewhat of increased action would seem to be necessary for the consolidation of the fracture, in consequence of the time that has elapsed, he recommends not merely the application of a proper apparatus for keeping the broken ends of the bone in contact, but to combine with it the use of *pressure*. This may be accomplished, by putting particular sorts of splints and pads on the part, the object being simply to produce such a degree of pressure as will excite some degree of pain—a pain which will last for a certain time. When the cases have been treated in this way, Mr. Amesbury has found that the ununited fractures have united readily. Indeed, he observes, (which I think accords with my own experience on the subject), that the individuals in whom the defect of union is found, are generally persons of healthy constitution, in whom we cannot perceive any indications of a defect in the natural powers.

It is important to ascertain the point I have now mentioned, because if the union can be accomplished by the simple means I have just stated, we shall save patients from the necessity of undergoing other treatments which are both painful and dangerous. For in instances of these ununited fractures, proceedings have been adopted which, at all events, have generally required a long course of confinement, and, in some instances, have caused such disturbance as ultimately to prove fatal to the patient. Sometimes an incision has been made through the soft parts, the fractured ends of the bone have been exposed, and the surgeon has actually sawn off a part of the ends. This, I need not observe to you, is a very important proceeding. If it is in the fleshy part of the thigh, it must be a very difficult thing to accomplish; you have to inflict a very extensive wound, a wound very likely to be followed by considerable inflammation, and that with a still more serious effect. In many instances in which this has been done, the patient has at least been left in a worse situation than he was in before.

Another mode of proceeding in these ununited fractures, has been, the passing of a seton between the broken ends of the bone and leaving it there in order to excite a certain degree of inflammation, which having been accomplished, the seton has been withdrawn, and the part left to its natural powers. I believe it may be said, there are two or three instances, in which, after some weeks or months' treatment of this kind, with considerable danger, union has been effected, but in other instances union has failed. Sometimes blisters have been applied; again, it has been conceived that rubbing the broken ends of the bone together might excite the necessary degree of action requisite for the consolidation; but still where that has been done, consolidation has not been found to take place; at all events, however, that is not a dangerous proceeding.

Treatment of Compound Fractures.—I proceed next to speak to you of the management of *compound* fractures, the observations which have hitherto been made being applicable to cases of *simple* fracture.

In compound fracture the soft parts may be divided by the same violence which breaks the bone, as in the case of a carriage-wheel passing over a limb; a contused and lacerated wound of the soft parts is made by the wheel at the same time that it occasions the fracture; in such a case you have a large external opening—a very free wound. More commonly the bone is broken first, and then the fractured end (more particularly if the fracture be oblique, so that a part of the bone has a sharp extremity) is forced through the soft parts in consequence of the exertion the patient uses after the injury has occurred. The patient rises perhaps, or attempts to rise and to stand on the leg, and thus the occurrence may take place. When a fracture happens to a person who is intoxicated, not being aware of what has occurred he makes use of violent efforts, and thus the broken end of the bone is not only often forced through the skin but through the stocking; it has been forced even through a boot. In these cases where the division of the soft parts is *secondary*, the external wound is generally small—sometimes a mere puncture, while the internal wound is perhaps just as extensive as in the former instance.

What is a proper case for amputation?—The degree of injury is extremely various in cases of compound fractures. In the most serious cases it becomes a question whether the loss of the limb may not be necessary, in order to prevent the risk which would otherwise accrue to life. It is difficult to lay down precise rules upon this point. Each case presents something peculiar to itself; and it will be necessary for the judgment of the practitioner to be exercised after a careful consideration of the particular circumstances in each individual instance.

We can only speak here in a very general way upon what is necessary to guide us in determining upon this important question. We must attend to the degree of injury which the parts have received, and also to the greater or less importance of the parts involved: for instance, we should see whether joints are at all injured; whether it is probable that considerable blood-vessels or any large artery be implicated. The age and the constitution of the patient must be taken into consideration. Also it is sometimes a question of importance to ascertain whether the patient will have such professional care and such comforts as his situation requires.

A comminuted fracture of a bone with the soft parts extensively torn and mangled, by a limb being engaged in machinery, for instance, is a case, respecting which we can be under no doubt. Amputation is necessary in such a case. We sometimes find a limb half torn off and the fracture of the bone by no means the most important part of the case. Here it is absolutely necessary to amputate. The case of a comminuted fracture with serious bruising and laceration of the soft parts where the bone is extensively exposed, more especially if fracture occur in the neighbourhood of a joint with a great probability of extending into it, and with the probability also of an artery or arteries being injured, that case is one in which amputation must be performed, if it occur in an old person, in a person of enfeebled constitution, or to a person in an hospital or in a crowded situation, where the powers of recovery generally take place less favourably than under other circumstances. But, the same kind of injury may not be thought a case requiring amputation, if it happen in a young subject, one of vigorous constitution, and to an individual situated in a pure and wholesome air. We should be on our guard against hastily condemning a limb in cases of this kind; for the resources of nature are so great that sometimes we see parts restored, when we had anticipated that the loss of the limb would be the inevitable consequence. I remember about twenty years ago, a case having been brought into this hospital of a dreadful compound fracture occasioned by a carriage-wheel. The whole limb had received a violent injury; there was an external wound of the soft parts of the leg, leading down to the ancle; about four inches of the tibia were entirely denuded, and the soft parts almost completely detached, there was very considerable bruising; the bones were projecting, and the fracture as well as the wound, extended close down to the ancle joint. I considered this to be a case in which amputation would be proper, and I represented my opinion of the necessity of the measure to the patient, but he seemed to have made up his mind that, at all events, he would not part with his limb; and the representations that were made to him of the probable danger to life by refusing to submit to the operation, had no effect in altering his determination; he would not have it removed. The limb was accordingly laid on a broad splint on its outer side (the accident being on the inner side), and the necessary means were adopted for the purpose of preventing inflammation. Now, this case did well, really without a single unfavourable symptom taking place, in about a dozen or fourteen weeks. The wound, which was very considerable, united, the fracture became consolidated, no exfoliation of the bone took place, and the lad had a good strong limb to support himself upon.

You are not to consider the size of the external wound at all as a measure of the degree and seriousness of the injury; it is the violence which the bone has experienced, the contusion and laceration of the surrounding soft parts, the injury to joints, or some large artery—such are the circumstances which constitute the state of danger. *Ceteris parious*, I think it is an advantage to have a large external aperture in these cases, because such free external wound affords, as the matter forms about the wound, an easy escape to it; so that, in many instances, the case will do better than when there has been merely a minute external opening of the skin.

The reason for amputating, in a case of compound fracture, is the danger that would accrue to the life of the patient, in consequence of the injury if the limb were not removed. In the very serious injuries of this kind which sometimes occur, traumatic gangrene, mortification of the limb, generally may be expected to come on, and violent inflammation, with a corresponding febrile disturbance of the system, which runs to such a height as to endanger life. Then there is a more remote degree of danger from repeated suppurations, from the drains on the system which take place when these wounds get into the chronic stage, and when there is a thin discharge, accompanied with hectic fever. Another consideration which influences us in our determination, is the very imperfect, and sometimes useless, state of the limb after the patient may be said to have recovered from the injury. The injury which the soft parts, in the neighbourhood of the fractured bone, have sustained is so considerable, and the repeated inflammations and suppurations have produced such a degree of stiffness, that the patient, perhaps, recovers with a limb in a condition not to be at all useful to him, but, in point of fact, to be rather burdensome than otherwise, and that, too,

after many months, and even sometimes years' suffering. These are the considerations which, under certain circumstances, induce us to think it expedient to amputate a limb rather than to attempt to preserve it.

The same question occurs in this case as in the instance of serious injuries to limbs from gun-shot wounds,—the time at which amputation may be most advantageously performed. For in the case of compound fracture, amputation may be performed immediately after the occurrence of the accident; or it may be deferred till some time afterwards. I had occasion, when I spoke of gun-shot wounds, to consider the question I am now adverting to fully, and I stated to you then, that there is no doubt whatever of its being by far the safest and most eligible practice to amputate immediately—to perform the operation within twelve or thirteen hours after the receipt of the injury; and all the considerations which led to that inference, in instances of gun-shot wounds, are equally applicable to cases of compound fracture that require amputation; I, therefore, need not go over the ground again.

When we treat a compound fracture with the view of repairing the injury, and of restoring the limb to an useful state, we generally attempt to produce an union of the external wound; we approximate and retain the edges of the wound in contact, in the hope that they may become united, and thus that the compound fracture may be converted into the state of a simple one. I know that we do not very often succeed, because the wound of the soft parts is not favourable to the occurrence of adhesion; it is a lacerated and a contused wound, and a wound of that kind will not regularly unite by adhesion. We may make the attempt, however; we may either draw the edges of the wound together by short portions of sticking-plaster, or cover it with lint dipped in the blood which flows from it; this forms a crust over the wound. If we succeed in producing union of the external wound, we find that the case will go on as well as if it were an instance merely of simple fracture. It is necessary in compound, as well as in simple fracture, to bring the displaced ends of the bone into their proper apposition, to place them in contact, and to maintain them so; but the injury which the soft parts have experienced is one of the circumstances that requires our particular and early attention.

We may naturally expect, in consequence of such injuries, inflammation, suppuration, fever, renewed inflammation and suppuration, repeated formations of matter. You will recollect, that the inflammation here occurs in the cellular texture, in the very centre of the limb; you will remember, how easily inflammation, when it takes place in the cellular substance, runs along that texture, so as within a very short time to extend through the whole of the limb, as in the case of phlegmonous erysipelas.—When, therefore, in suppuration, the progress of the matter to the surface is impeded by muscles, tendons, and fascia, external to it, the extension of suppuration throughout the limb in the intervals between the muscles is a very common occurrence. These are the effects which we must endeavour to prevent or to overcome, and what is the course most likely to accomplish that purpose? You really find it quite necessary here, as I mentioned to you in the case of a simple fracture with contusion and bruises, to put out of consideration, for a time, the fracture of the bone, and to adopt the means that are necessary to prevent the occurrence of inflammation in the soft parts; and you certainly would not attempt to prevent that by the application of bandages, or of hard splints to the limb. You must adopt very active antiphlogistic treatment. In a young patient of full habit with such an injury, you must bleed from the arm, and follow up that by active abstractions of blood, locally, by leeches; apply cold, and adopt the other parts of the antiphlogistic treatment necessary on such an occasion. During the time you are doing this, the limb must be laid easily upon a soft pillow, or upon a broad splint, well padded and soft, so as to prevent the fractured ends of the bone from moving on each othe.

Propriety of Bleeding generally.—There has been a dispute (in fact almost all points in the medical profession have been disputed), whether it is proper to bleed in compound fracture, or injuries of this kind; and one of the principal reasons brought forward against it is, that in the progress of the case, in order to repair the injury, in order to unite the bone—in order to remedy the consequences of the inflammation, suppuration, and so forth—the patient will require the exertion of considerable strength of constitution, and therefore you ought not to take from him blood—you ought not to run the ri-k of lessening those powers, the exertion of which will be so much needed. It seems to me, that the reason for bleeding is in order to prevent the inflammation, and that suppuration which, in the further progress, are said to require this constitutional power. If you adopt suitable antiphlogistic treatment in the first instance, much inflammation and suppuration will not occur, so that the demand is not made upon the constitutional powers. The reasoning which objects to taking blood in consequence of the extensive suppuration which will take place in the progress of the restorative pro-

cesses, seems to me to be this, If you do not bleed, inflammation and suppuration will ensue, and you want power in order to repair the effects of those processes; you are not to bleed because you will want that power afterwards. This is a mode of reasoning that I should not be disposed to entertain. The occurrence of suppuration and inflammation which is to be charged, in point of fact, to the neglect of proper antiphlogistic means, is made a reason why those antiphlogistic means should not be adopted!

It is by no means, however, absolutely necessary to bleed generally in cases of compound fracture; general bleeding, probably, is only required in some few instances where the patient is robust, and where he is of that kind of constitution in which considerable inflammation may be expected. In the majority of instances it will be sufficient to bleed freely from the part by the application of leeches, until the probability of inflammation shall have passed by. If a few days after the occurrence of the injury, pain and swelling should come on, and if the patient should begin to feel hot and thirsty, you would immediately adopt the same kind of antiphlogistic treatment I have mentioned, for you have the same kind of object in view. Until all increased action—until all probability of inflammation is at an end, you will not find it expedient, in cases of compound fracture, to bandage up the limb, and to confine it tightly in splints. In fact, closely bandaging it, and the firm application of hard splints, are more likely to produce inflammatory action, than to be of any service to the bone. I think, therefore, that after all risk of inflammation has gone by, you ought to adopt very gentle means for retaining the broken ends of the bone in contact; and in common fractures of the leg, I do not know any thing that answers the purpose better, than what is called a wooden *fracture box*; the sides and ends of which admit of being altogether or separately opened, where the limb rests on a soft pillow at the bottom of the box, and where it rests against each side upon two pads—where also the foot is similarly supported by a pad at the end. Then the different parts which open can be fastened again by buckles and straps to any degree of firmness that may be required. To prevent such movement as would be painful to the patient, by altering the thickness of the pads, or by putting an additional pad into a particular situation, you can produce a pressure where you want to straighten the bone, or prevent it deviating in any particular direction. By letting down one side, you can expose a wound if it is on the side, and apply poultices, or leeches, or dressings, as required. If you have the pads covered with a piece of oil silk, you keep them clean. You find the patient is made very comfortable by this apparatus, and in many instances the fracture goes on so well under their use, that one prefers continuing to use it, to removing it and putting the limb on the ordinary splints. However, after inflammation has gone by, and when there is no risk of its return, the limb may be taken out of this box, laid in the ordinary splints, and treated in the usual way.

The progress of compound fractures is often retarded by the separation of portions of bone. The ends of the bone being occasionally completely denuded sometimes perish, so that a portion must be completely separated, before the process of union of the fractured ends can commence. You are no doubt aware, that when a portion of the whole thickness of the tibia, for instance, or of any essential solid part is to be removed by the absorbents, considerable time is required. However, after this is accomplished, you will find that the union of the bone will take place very perfectly. Although considerable pieces may come off from each end of the broken tibia, the processes of nature are adequate to supply what is lost, or, at all events, to ossify the soft matter which intervenes between the ends of the bone, so as to render the union sufficiently strong for the support of the body. There was a case last summer in this hospital, of rather an elderly person—a man between fifty and sixty years of age, who had got a compound fracture of the leg, in consequence of jumping down from a height, on the occasion of a house being on fire, and where pieces of the whole thickness of the upper and lower ends of the tibia, separated by *exfoliation*, after which the bone united pretty rapidly.

It may happen that the bone is communicated in the situation of the fracture, that some portions are completely detached, quite loose, or, if not, that they are merely connected together by a slender portion of soft parts. When pieces of bone are thus loose, and near the surface of the wound, it is better to remove them at once; they are only sources of irritation and inconvenience, if they are left behind. You are not, however, to make any extensive incision, in order to remove them, because I speak of fragments merely that are either entirely or nearly detached, and which can be removed without much pain to the patient.

I should have observed to you, that sometimes too, when the sharp end of the bone has been forced through the skin, we find a difficulty in restoring the bone to its situation. It is so completely held just through by the surrounding integuments, that, in some instances, we cannot replace it. Under such circumstances, there are two courses of proceeding. It may be necessary to enlarge the wound of the skin a little, and then to

replace the protruding fragment; or, in some instances, it may be advantageous to saw off the projecting point of bone.

In respect to the inflammation which frequently comes on in compound fracture, when matter forms in consequence of such inflammation, it is expedient, as early as we can, to make an effective opening for its discharge. The matter in these cases often forms deep in the limb; and if an external opening be not made for the exit of that matter, it is apt to extend in the limb, to run in the intervals of the muscles, to produce extensive sinuses—excavations which are afterwards very troublesome, and the source of long-continued suppurations. Free and early openings then are particularly applicable in cases of suppurations occurring after compound fractures.

It may be a question, whether it would be proper to proceed to amputation, if we are certain that the fracture extends into a joint. Such a circumstance does not render amputation necessary. If the fracture extend into a joint, without having any immediate external communication, the processes of restoration necessary for consolidating the fracture, will go on very well. It may happen that the joint is swelled, that inflammation of the synovial membrane may ensue; and, indeed, that may ensue, whether it be a case of simple, or of compound fracture; this may be combated by proper treatment. Such an occurrence, therefore, is certainly no ground for amputation. Would it be expedient, or is it necessary to propose amputation in the case of fracture extending into the joint with an external communication to the fracture? If there were an extensive opening into a large joint, it might be necessary; but the mere circumstance of such a condition of fracture (and a joint not of the largest size) is not a circumstance by any means requiring amputation. In the course of last summer, there was a case in this hospital of a compound fracture of the lower part of the tibia, which was, in fact, comminuted, in consequence of a very heavy stone (I think it was a grind-stone) falling upon it. After a little time, a portion of the bone came away, consisting of a part of the internal malleolus, visible from without, from which this portion had separated. That patient recovered very well. There was no particular circumstance occurring from the extension of the fracture into the joint, nor from the separation of a portion of the fractured bone involving even the articular surface of the malleolus.

Now when you consider how extensive the mischief is in these cases, you will easily understand that the consolidation of the bones requires a longer period of time than is found necessary for reparation in cases of simple fracture. Eight, ten, twelve, or a greater number of weeks, often elapse before the fracture is consolidated. And again, from the long confinement, from the inflammatory swellings which the parts undergo, and from the depositions into their textures consequent on inflammation, so much stiffness will often ensue, both immediately round the fracture, and in the neighbourhood of the joint, that the limb, after the accident, may be said to be cured, often remains in a state of very little use to the patient for a considerable length of time. In this condition, friction, bandaging—common bandaging—surrounding the limb with strips of soap-plaster, warm bathing and subsequent friction, with powerful stimulating liniments, are means by which, with natural attention, we may ultimately restore the use of the limb.

Lecture XLIX.

Fracture of the Ossa Nasi—Simple Fracture of the Lower Jaw.—Treatment.—Compound Fracture of ditto.—Treatment.—Fractures of the Vertebræ.—Prognosis.—Treatment.—Fracture of the Sternum.—Treatment.—Fracture of the Ribs.—Treatment.—Emphysema.—Treatment.—Fracture of the Pelvis.—Treatment.—Fracture of the Sacrum.—Fracture of the Spine of the Ilium.—Treatment.

Gentlemen, although the exposed situation of the *ossa nasi* might induce us to suppose that they would be frequently broken, the accident is by no means common. The little which can be contributed by surgery towards replacing and retaining a fracture of the nasal bones is so obvious, that I need not make any further remark on the subject.

Simple Fracture of the Lower Jaw.—The form and position of the lower jaw, and the circumstance of its being covered by little except integument in the greater part of its extent, render it very liable to fracture. It may be broken either at its anterior arched position, its ascending branches, or at the processes by which those branches or rami (as they are technically called) are terminated. The rami of the bone are less strong, and considerably thinner than the arched part, but as they are covered by powerful muscles, fractures of the rami are comparatively rare.

The bone is most frequently broken in its strongest (i. e., in its anterior arched) portion. Fractures of this part may be either *perpendicular* or *oblique*, and they are said sometimes to be *longitudinal*, but that may be considered a very rare occurrence. The bone may be broken at one place or more—there may be a simple fracture, or the fracture may be complicated with an external wound. The

fracture, too, is often attended by a good deal of contusion—ecchymosis and swelling of the neighbouring soft parts.

Treatment.—The replacement of a broken lower jaw is very easy. By introducing one or both thumbs into the mouth, and by depressing or keeping stationary the posterior part of the bone, at the same time that we elevate or bring forwards the anterior part with the fingers, we can in general replace a fractured lower jaw with great facility. The *retaining* it in its situation, and the preventing it from moving, are points not quite so easily accomplished as the replacement; for we can only apply the means of retention to the external surface of the lower margin of the bone, the whole of the inside of the bone not being within our reach. However, this inconvenience is overcome by the advantage we have in the complete and firm support which the lower jaw receives from the upper jaw. When the mouth is shut and the lower jaw is firmly bound in apposition to the upper jaw, it may be said to supply, in some degree, the place of a splint.

The best and easiest mode of keeping the lower jaw in its situation is by means of a *four-tailed* bandage, consisting merely of a long piece of linen split at each end. The middle and undivided portion is applied to the chin, and embraces the anterior part of the bone, whilst two ends of the bandage are carried backwards and fastened behind the head, and the opposite ends or tails are brought up by the sides of the ears and fastened over the top of the head. In this way force is applied in a circular manner to the anterior arched portion of the bone, at the same time that force is applied in a perpendicular direction to the basis of the bone below; and by the combination of these two forces the bones are steadily fixed in apposition. The bone of course remains steadily fixed only so long as the person keeps the mouth shut; and in order to avoid the displacement which the natural motions of the jaw in mastication, deglutition, and articulation, would produce, persons must abstain from talking, and they must take merely soft food—*spoon victuals*, until the union of the bone is effected.

It has sometimes been found advantageous to apply a sort of splint to the surface of the jaw; you take a piece of paste-board dipped in water and made quite soft, and cut out a piece that will adapt itself to the inferior edge of the bone; just make a few snips in it, so that it will fit itself to the jaw. In this moistened state the paste-board will accommodate itself to the form of the jaw, and when dry you will find it to be a paste-board *case* exactly adapted to the part. You use this as a splint, confining it by the four-tailed bandage, which I have just described. But you will recollect that paste-board is a roughish substance, and that if it is bound firmly on the skin of the face the parts will sometimes become excoriated. It is necessary, therefore, to protect the face by applying soap plaster to the surface, or by lining the paste-board with soft rag. By neglecting this precaution I have frequently seen considerable irritation produced,—even inflammation and the formation of matter have ensued in consequence.

Compound Fracture of the Lower Jaw.—It happens from the violence applied to the bone, and probably from the fracture extending, on the inside of the mouth, to the part where it is covered by the gum, that it becomes a compound fracture, although there is no external opening into the wound. It frequently happens, in such a case, that there is much inflammation, and indeed the formation of matter is by no means an uncommon occurrence.

Treatment.—Mind, under such circumstances, an opening must be made early for the exit of the matter. It has been recommended, by way of assisting to maintain the fragments of the jaw together, to tie the teeth on each side of the fissure with silk, or by a piece of thin wire. I believe it will not often happen that you will have occasion to adopt these means.

Symptoms.—By the way, in describing this accident of fracture of the lower jaw, I omitted to mention what the circumstances are which indicate its existence—the symptoms. Now these, in truth, in consequence of the superficial situation of the bone, are very obvious. In the first place, if there be any displacement of the fractured part, there is an alteration in the appearance of the lower part of the face; the mouth is a little deformed; it appears to be turned aside. But when you come to feel the row of teeth, you immediately perceive the irregularity produced by the fracture; and in the same way, by feeling along the bone externally, you detect the injury. Then, further, if you take the two portions of the fracture, one in one hand and one in the other, you can move them, and hear very distinctly the crepitus, or grating, caused by the broken ends rubbing against each other. These circumstances are so very palpable in the case of fracture of the jaw, that it is hardly possible to make any mistake in judging of the accident.

If the bone be broken in the rami or branches, these parts are covered by the thick masseter muscle, and it is by no means so easy here to be satisfied of the existence of fracture. Little can be done, however, under such circumstances for the purpose of keeping the parts together; you can merely, as in the other case, bind up the one jaw against the other, and enjoin quietude until

the fracture shall be consolidated. Little is to be done by any particular apparatus, more particularly where the fracture is so completely out of your reach as any portion of the ramus of the jaw.

Fracture of individual Vertebræ.—The *vertebræ* are not much exposed to fracture, considered individually. Their form, situation in the body, and the way in which they are surrounded by muscles and other soft parts, render it very difficult to have a force applied in such manner as to act powerfully on one vertebra without affecting the contiguous bone. Fracture, therefore, of a single bone is rare; but the vertebral column, taken collectively, is liable to fracture, that is, the injury may pass through a part of the column; in which case, more than one vertebra becomes involved in the mischief.

Fracture of the Spine.—The body of one vertebra, and the articulating or transverse processes either of the vertebra above or of the vertebra below, are involved in the case of what is properly called *a fracture of the spine.* It is true that both spinous processes, particularly, may be broken; or there may be a fracture of one of the spinous processes only; this, however, does not take place commonly, for these processes are so covered and inclosed by strong muscles, that it is difficult to break one process and no more.

Fractures of the vertebral column generally happen in consequence of the application of some very great degree of force to the body. A person falls from a great height to the ground—falls upon the trunk; or some very considerable weight falls from a great height upon the trunk; it is some violent force of that kind which produces fracture of the spine. When the vertebral column is thus broken, the accident may be attended either by displacement of the fractured part or not. If the fractured parts have undergone displacement, an irregularity may be produced in the line of the spinous processes, and therefore, when on passing the finger along it, an interruption is found in the series of those processes, one or more may seem to be depressed, or pushed in, or the spine may form somewhat of an angle at a particular point. Frequently, however, although there may have been displacement, yet when the force no longer acts upon the spine, it recovers its straight position, so that you have not any external visible circumstance that will actually point out the precise spot where the injury has been received. You can only judge of it by the sensation which the patient describes, and the accident is usually attended with so much pain, that he generally points out pretty accurately the injured part. When the vertebral column is displaced, the accident is attended with pressure upon the spinal chord which runs along the canal, and this pressure produces insensibility and complete paralysis of all the parts situated below the injury. It is this circumstance that renders fractures of the spine so very serious; that renders them, in fact, in general, extremely dangerous, and almost necessarily, sooner or later, fatal.

A fracture of one or more of the vertebræ would unite just as well as a fracture in any other part of the body, if there were nothing to be considered but the broken bones, and it would not be a matter of more consequence than a fracture in either of the extremities. The great importance of a fracture of the spine, arises from its effects upon the spinal chord; and the situation of the chord in the vertebral column is such, that it cannot possibly escape the effects of an injury such as I am now describing. Even if the spinal chord be not actually pressed upon, the accident will most likely produce so much disturbance from bruises and concussions, that effects almost equally serious with those occurring from pressure will ensue. The symptoms in the former case sometimes come on more gradually; but the spinal chord generally receives at the moment so much injury as to produce the complete paralysis of all the parts below the seat of injury. The parts are so completely deprived of sensation, that if you pinch or cut the skin, or apply heat, the patient is not sensible of it: the loss of sensibility is complete; and there is also a complete loss of voluntary motion. The patient is not able to move any part receiving its nerves from below where the accident has occurred. Complete insensibility, then, and complete paralysis are the consequents of the injury.

At the same time, the natural organic functions of the parts which are necessary for maintaining vitality, go on; the circulation goes on, and the secretions go on. The internal or organic life goes on, although the external life, that which constitutes voluntary motion and sensation, is put a stop to. The heat of the parts is kept up to a certain extent, but not the same as under ordinary circumstances; the want of power extends itself to the muscles of the large intestines, and to the bladder, so that the patient has not the power of expelling his fæces or urine; the sphincter muscle of the rectum loses its power, so that the fæces may pass off involuntarily. The distention of the bladder, and the necessity for using the catheter, exist at an early period after the accident, but, after a certain length of time, the water runs off involuntarily.

There is a general symptom attendant on fracture of the spine, the exact reason of which, I believe, has not been explained, or at least if it has I am not aware of it, and that is, a permanent erection of the penis—

a state of *priapism*; and this I have seen occur, when fractures of the spine have happened in very different situations.

Prognosis.—Now, the prognosis, the chance which the patient has of surviving the accident, and the length of time he may live after the occurrence of the accident, are circumstances which depend much on the situation in which the accident has been received.

When an accident of this kind happens to the first, second, or third vertebra of the neck, if it be attended by displacement of any of the broken parts, so as to cause pressure upon the *medulla spinalis*, the case is immediately fatal, because the pressure then being above the origin of the phrenic nerve, respiration cannot be continued. When a fracture takes place below the third cervical vertebra, although the occurrence of the fracture in that situation paralyses the entire costal muscles, though it paralyses the abdominal muscles, that is, although it paralyses the great bulk of muscles engaged in the act of respiration, still the phrenic nerve is not involved, and in that case, for a certain length of time, respiration is carried on by the diaphragm.

A fracture of the first or second vertebra is not, however, necessarily fatal; it is only under circumstances in which the fracture is attended with such displacement as to produce the pressure I have just alluded to, that death is the immediate consequence. There is a preparation belonging to this museum, in which there appears to have been a fracture of the first vertebra—the atlas, because there is a distinct fissure in it. Now, the individual in whom this took place, recovered completely, because the atlas and dentata are completely anchylosed—completely soldered together by bony union. There the fracture was not attended with pressure upon the spinal chord. A case is mentioned by Sir Astley Cooper, in which a boy, three years old, received a serious injury about the upper part of the neck; and after the occurrence, was observed to be unable to move his head, except in a very limited way. He never moved it without holding it with both hands. He seemed to be afraid that some mischief would occur by the least shake or motion of the head. He died at the end of twelve months; it does not appear from what cause; and it was found on examination, that the atlas was broken in such a way as to loosen the attachment of the ligament which holds the vertebra dentata in its place.

If a fracture take place in the fourth cervical vertebra, or any inferior one, down to the beginning of the dorsal vertebræ, the patient generally lives from three or four to seven, eight, or ten days, according as the fracture is situated higher up or lower down. In such a case the patient performs respiration simply by means of the diaphragm. The power of contraction of the diaphragm is retained; when the diaphragm is put into action, therefore, the abdominal viscera are protruded, and the chest is enlarged on each inspiration, and the reaction of the parts seems to occasion the expiration; but respiration is performed very imperfectly in this way, so that the patient can hardly speak, except in a low tone. He is incapable of sneezing; he cannot make any effort for the expulsion of the fæces; he cannot put the muscles of the abdomen into action, they are completely paralysed, and in this state life is not long supported. I had a case under my care some time ago, where the fourth was partly dislocated upon the fifth cervical vertebra. In this case, dislocation could not be distinguished from fracture. That patient lived four days; and not long after that period I had another case in the hospital, where the injury had been received quite in the lower part of the neck; in fact, the body of the sixth cervical vertebra, with the articulating transverse processes of the vertebra above it, had been fractured, and the body of the sixth was displaced forward, so as to overlap the seventh, and press on the spinal chord. In this case the patient lived *ten* days.

When the *dorsal* region of the spine is broken, the patient will perhaps live a fortnight or three weeks. In case of fracture occurring in the lumbar region, the patient may live three, four, five, or six weeks, and, in some instances, life has been prolonged to a much later period. If I do not mistake, Sir Astley Cooper states a case, where the gentleman survived the accident nine months. There is a curious instance (a specimen) in the Museum of the College of Surgeons, which was sent to it by Mr. Harrold, a surgeon at Cheshunt, where a fracture of the spine had taken place; I think it was either of the last dorsal or first lumbar vertebra. This patient was kept perfectly at rest; the urine was drawn off by the catheter, and after the accident he recovered a kind of power of expelling the urine, which appeared to be effected rather by the action of the abdominal muscles, than by the contraction of the muscular coat of the bladder. However, in about six months he had considerably recovered; he could sit up and dress himself, and though there was a total want of voluntary power in the inferior parts, he had a power of moving himself down stairs from step to step. He died at the end of twelve months. There was a complete bony union of the fracture—a complete bony callus soldering the parts together; and the singularity in this case was, that a part of the body of the vertebra had been driven off by the accident, and was driven across the

vertebral canal, so that it had completely divided the medulla spinalis, and the ends are about an inch separate, according to the preparation which is now in the museum. In this fracture which I now show you, and which is a fracture of the dorsal vertebræ, the same circumstance has taken place; a piece of the body of the bone is driven off, and forced across, so as to divide the medulla spinalis. The case, then, in the Museum of the College, clearly shows that fracture of the spine may be recovered from, so far as the fracture itself is concerned. It shows that the vertebræ possess in themselves the same powers of restoration that are possessed by any other part. A gentleman showed me a few days ago a specimen of a piece of bone, and asked me what I thought of it. It was a piece of the spine; and I said, if I were to give an opinion, I should say that the spine must have been broken, and that the fragments had become united by bony union. It had the appearance of having been broken, and of there having been thrown out on the anterior part of the column, a sort of bony substance forming a kind of *rough plastering*. He said it had been a fracture. In this case, also, there was a mass of bone filling up the vertebral canal, and I could hardly see any space in which the medulla spinalis could have remained. He said it was an instance in which the spinal chord had been completely and entirely divided; and, indeed, from the state in which the vertebral canal appeared to be, that must have been so, for there was not room to pass, perhaps, more than a blow-pipe. I think the gentleman said, that that patient had recovered so far as to be able to walk about. There is a case minutely described by Soemmering, where the patient died in six months from the occurrence of the accident, of mortification of the lower extremities. The injury was done to the body of the first lumbar vertebra, and the articulating transverse processes of the last dorsal. There had been the same kind of rough substance thrown out, and the bone in the fractured parts was firmly consolidated.

Treatment.—The next question is, What *treatment* should be adopted in these cases? In fracture, without any displacement, and where there is not actual pressure on the spinal chord, but where, soon after the injury, serious pains come on in the course of the nerves below the seat of injury; when convulsions and painful spasms attack the limbs, and which occur in consequence of inflammation of the spinal chord, we can only have recourse to the ordinary antiphlogistic treatment; take blood locally, and adopt the other antiphlogistic means, strictly enjoining rest. With respect, however, to the ordinary run of cases, which are instances where paralysis and insensibility immediately attend the accident, we must place the patient in a state of perfect quiet, and make him keep absolutely at rest; for this purpose the fracture-beds employed by Mr. Earle, Mr. Amesbury, and others, are particularly well calculated, because they afford the patient the opportunity of relieving himself without movements of the body; so that there can be no motion of the broken ends of the bones against each other; *none* of those motions which would be likely to induce pressure upon the spinal chord, or that would be likely to produce or aggravate inflammation. Absolute quiet is the most essential point in the treatment of these cases. It may be necessary to adopt antiphlogistic means of a local character; and those cases do not, in general, require any other measures. You must employ the catheter so as to draw off the water at proper times; and then, under favourable circumstances, we see that nature is capable of repairing an injury of this sort, so far as the injury to the bones themselves is concerned, although the power in the limbs is not likely to return, when the spinal chord has received very serious injury.

The proposal has been suggested of relieving the spinal chord from pressure, by denuding the vertebral column on its posterior aspect, and by cutting away with a saw or trephine the spinous process, corresponding to the situation in which the spinal chord may be supposed to suffer, under the idea of elevating the pressed bone, or of taking away that part which causes the pressure, in the same way that you would relieve the brain from pressure occasioned by fracture of the bones of the skull. The great objection to this proceeding is, the uncertainty respecting the precise seat of injury, and the precise mode in which the spinal chord has been injured, or continues to suffer pressure. I have mentioned to you already, that sometimes an irregularity, apparently a prominence of a spinous process or two, may point out the situation in which you may suppose the injury to have been received, and in which you might suppose it probable that incisions should be carried, in order to accomplish the purpose I have mentioned; but in a great number of instances, you have no direction of that kind, and you would proceed under a great uncertainty, whether it ought to be one or other, or a third spinous process, that ought to be removed. Then, again, you do not know whether the paralysis is the after consequence of the injury, or whether it is merely the effect of that injury which the spinal chord had received at the time of the accident, although it may no longer continue to suffer pressure. Now, in the case that I have mentioned to you of fracture with dis-

placement of the lower part of the cervical column, when I came to examine the patient, there was no pressure upon the spinal chord; but, upon cutting open the theca vertebralis, there was a sufficient trace or appearance to render it probable, or pretty clear, that it had previously received pressure; here the paralysis and want of voluntary motion were permanent. Now, if you had cut down to the spinal chord in that case, it would have been of no advantage to the patient; and I am confident that, in a great number of cases, such is the nature of the injury which produces the insensibility and want of motion, that cutting down upon the chord would afford no relief; I have adverted to the circumstance that, in some cases, there is a portion of bone driven from the body of the vertebra, stand right across the vertebral canal, and filling it up. Removing the spinous process in such a case, would be of no benefit to the patient.

On the one hand, then, the objection to the operation arises from the great uncertainty as to the exact situation, or exact nature of the mischief; and, on the other hand, we must observe that this operation of exposing and taking away a part of the vertebral column, is really a very serious, and, I may say, a very delicate affair. Any person who has had to take out a portion of the vertebral column in the dead body, is aware that it is not a very easy task, even where we do not care what we cut through; and to perform an operation on the living subject in the same place, must be still more difficult. It is an operation which, if it were done when the contents of the spinal canal were perfectly uninjured, would, I think, be likely to be followed by inflammation of the membranes and chord; it would be likely to produce mischief, even if no mischief had existed before. For these various reasons, it appears to me that the proposal of taking out the spinous processes of one or two of the vertebræ ought not to be entertained. It has been done in two or three instances, but the results of those cases present no encouragement for a repetition of the attempt.

Fracture of the Sternum.—The *sternum* is not frequently broken. Although it presents a pretty broad surface, and although very often considerable violence is offered to it in the shape of blows, although it is not much covered by other parts, it eludes fracture, in consequence, probably, of the elasticity of the cartilages of the ribs by which it is supported. The parts of the chest with which it is connected will bend, and, consequently, the bone escapes fracture under circumstances which we would suppose capable of producing it. But the sternum is occasionally broken, and it may be a very serious occurrence, or it may be by no means important. A very violent injury, such as the passing of a wheel over the body, will depress it. The injury is then of a very serious nature, not so much from the injury which the sternum itself has received, but from the mischief done to the parts within the chest. A fracture of the sternum, not attended with injury to the internal parts, is not very important.

Treatment.—A young chap, 26 years of age, was brought into the hospital in January 1826, under my care. I believe he had been engaged with some companions, perhaps, in drinking; and after an entertainment of that kind, they had resorted to sports of rather a rough nature, and, in the course of his exertions, his chest had been struck with great violence against the edge of a table. It was very soon found that the sternum was broken across the middle; there was not any displacement, but there was a little irregularity just at one edge. When it occurred, he felt much pain across the part, and also on coughing. At the time he came to the hospital his pulse was feeble, and he seemed to be labouring under considerable depression, just like a person who had met with an accident of considerable importance. When he drew his breath, or when he coughed, or when he bent the head forward, crepitus could be distinctly perceived. The pulse soon rallied, and he lost twenty ounces of blood from the arm; aperients were administered, and he had a broad bandage buckled on his chest similar to that which is applied in the case of fractured ribs. In the course of the night he suffered a good deal from coughing which produced pain in the chest and much uneasiness. For this he had a linctus, which he was to take often. The cough disappeared, and the case went on well. He came in on the 16th of January, and went out, I think, on the 1st of February, quite well. I have seen other instances of fracture of the sternum, which have gone on in a similarly favourable way to this.

It is possible that some fractured end or portion of the sternum may be depressed, but this does not ordinarily occur. The way in which it is fixed to the cartilages prevents depression. If, however, the inferior fragment of the sternum should be depressed under the superior fragment, inasmuch as the anterior mediastinum is directly behind, and contains only loose cellular membrane, parts of no consequence, that simple displacement, I apprehend, would not be of importance.

Fracture of the Ribs.—Fractures of the *ribs* are much more common than those of the sternum. When these take place at the anterior part, or sides of the chest, the acci-

dent is generally easily recognisable by putting the hand where the violence has been received, or where the patient says there is considerable pain. The movements of the chest produce a sensible grating, or crepitus, and the patient experiences great pain from the motions of the broken ends of the bone in the chest. When, however, the fracture is situated in the lower ribs, and further back where the ribs are covered by thick muscles, we often do not succeed in detecting grating or crepitus, although all the other circumstances are present which lead us to believe the existence of fracture. In a doubtful case like that, it is better to adopt the treatment suitable to fracture of the ribs.

The function of respiration is of course much affected when fracture of the ribs has taken place, for this continued action being attended with more or less motion of the ribs, a constant source of pain arises, which, however, in some measure, can be avoided by the diaphragm and the abdominal muscles being employed in the respiratory action, to the exclusion of the intercostal muscles and the action of the ribs.

Treatment.—If the chest could be kept perfectly at rest—if the patient did not employ the intercostal muscles at all, there would be no movement of the fractured ends of the bones, and no material pain, probably, would be experienced. We endeavour to accomplish this as well as we can, by covering the part, either by a broad bandage of calico or flannel, or by including it in a broad kind of girth, fastened with buckles and straps, called a *fractured-rib bandage*. Patients very often experience great comfort from the application of that bandage; they find they can move, and even cough, freely when it is on. In some instances, however, the pressure of this bandage, and the swelling that takes place, seem to act unfavourably on the broken ends of the bone, and to aggravate the sufferings of the patient; and this is particularly the case where several of the ribs are broken; so that we often find it necessary to leave the chest without external pressure. In these cases we must regulate the treatment, therefore, according to circumstances, and allow the patient to have, or not to have, the bandage, according to his own feelings. If the patient be strong, if he has much cough in consequence of the accident, and if he be of a full habit, it is expedient to bleed him once, or oftener; purge him, put him on low diet, keep him quiet, and in the course of a fortnight, or three weeks, he will get perfectly well.

The fracture of a single rib is by no means an important occurrence; the patient recovers easily; but when you have several ribs broken, the case may be a very serious one. And there is one thing connected with fractures of the ribs, which, in many cases, is a source of great danger, and that is, the circumstance of the broken end of the bone projecting into the cavity of the chest, wounding the pleura and the lung. Under such occurrences, air escapes through the wound from the lung into the cavity of the chest, and very often also passes through the opening, which the broken rib has made, into the cellular membrane, around the situation of the fracture. From the general communications of the cellular membrane over the body, the air, when once admitted, readily extends over the chest, generally over the side of the body, and may, indeed, occupy the whole of the body, constituting what is termed—

Emphysema, in which the cellular membrane generally is distended with air, as the cells of it are distended with water in the case of anasarca, or general dropsy. The mere distention of the external cellular membrane, although it may produce great swelling, although it may even go to the extent of swelling up the eyelids and closing the eyes; although it may distort the features, so as to render the person hardly recognisable, and although it may swell other parts still more considerably, yet this mere distention of the cellular membrane by air is not a thing of any great importance.

Treatment.—If the swelling proceed to any considerable extent, we can at once get rid of it by making a puncture with a lancet into some part of the body, and the swelling quickly disappears. But the great mischief arises, in the case of emphysema, from the air which passes into the cavity of the chest, more particularly if it does not meet with a ready exit. The cases, therefore, of emphysema, in which there is the largest swelling externally, are by no means cases of the most importance.

If air escape from the lung into the cavity of the chest, and there remain, in the first place the lung that has been wounded collapses, becomes very much diminished in size, and the place which it formerly occupied in the chest is now occupied by air. If air still continue to pass through the wound into the chest, it not only occupies the space formerly occupied by the inflated lung, but it pushes the mediastinum, which is a sort of partition, towards the other lung, and prevents that lung from becoming fully distended, so that respiration is very much impeded from this cause. The mediastinum, you of course are well aware, is a moveable partition in the chest; and it is so moveable, that when you lie on the right side, the heart, which is seated, in fact, on the mediastinum, falls over upon it towards the right side, so that you do not feel it pulsating on the left side, as you would do under

other circumstances. You know, also, that the heart ascends and descends freely, in proportion to the extent of the motions of the diaphragm. So that the mediastinum is capable of passing from one to another position, according to the force applied to it. Hence matter, or any fluid, contained in one side of the chest, will exercise a considerable pressure on the parts contained in the opposite side through the mediastinum.

If, under any circumstances, respiration should become extremely embarrassed, the only course of relief is that which you would take, if one side of the chest was swollen or distended with water or pus; that is, you must make an external opening, and allow the air to escape, which it will do with, at all events, temporary relief. If it should accumulate again, you must repeat the operation. In performing this operation, you make an opening between the fifth and sixth ribs towards the anterior part of the chest, if on the right side; but you had better make the opening lower down, and more towards the side of the chest, if you are to operate on the left side for the purpose of avoiding the pericardium and heart.

Fractures of the Pelvis.—Fractures of the *pelvis* can hardly take place, unless in consequence of some very great violence, such as tremendous falls, which literally shatter to pieces the parts of the body that come to the ground, or from the passage of a carriage-wheel over the lower part of the body. And when that accident does take place, it is so generally attended by wounded vessels, internal hæmorrhage, or violent injury of some important organ, that the mere fracture is of minor consequence.

Treatment.—Indeed, in those cases of fractures of the pelvis, we can do but little towards relieving the very precarious state in which the patient is placed. If the os pubis be fractured, you may have injury to the urethra, and this may require a particular mode of treatment. We are not capable of doing much in these cases, for the purpose of retaining the fractured parts in apposition. All we can do here, as in fracture of the spine, is to put the patient into an easy situation, let him be kept perfectly at rest, and administer to any particular symptoms that may present themselves.

If the *sacrum* be fractured, you have, in addition to the other symptoms, a paralysis of the parts which are supplied by the sacral nerves, below the seat of injury. Fractures merely of the *spine of the ilium* are not of a serious character.

Treatment.—In such cases we can do little more than keep the patients quietly in bed; but a *compress* might be applied to promote the apposition of the fractured bone.

EDINBURGH UNIVERSITY.

CLINICAL LECTURES IN MEDICINE,

BY

DR. DUNCAN.

CATALEPSY.

In the first report of Dr. Duncan's lectures, with which we presented our readers, it was mentioned that a most extraordinary case of catalepsy had been admitted into the Infirmary, and was then under treatment. The learned professor's course having concluded on the 28th April, and having been put in possession of the whole of the remarks which the case has elicited up to this period, we now publish the particulars, adhering as much as possible to the order in which the various observations which have been made, from time to time, by Dr. Duncan.

The patient, an unmarried girl, by name Alison Anderson, æt. 25, was admitted on the 5th of February; and the case, Dr. Duncan briefly remarked, at the subsequent lecture, afforded an interesting example of a very rare and singular disease. It was of very recent duration, five days only having elapsed since the first attack. She had, for some days previous, felt unwell, and on the morning of the attack, her master's bell having been rung repeatedly without answer, she was discovered in the kitchen, sitting like a statue, rigid and insensible; it was soon found that her limbs, on the application of force, yielded in whatever direction they were bent; and when the force was withdrawn, remained motionless and without tremor, like bars of lead, in whatever position they were placed, no matter how painful under ordinary circumstances, or how contrary to the ordinary laws of gravitation. Dr. Duncan, at the same time, requested that the gentlemen would observe as much delicacy and forbearance as possible in their visits to this patient, as, from the singular nature of her malady, the crowds which would be attracted, could not fail to prove injurious and annoying.

On her admission to the Infirmary, there was complete loss of voluntary motion occurring in paroxysms, and continuing for about ten minutes at a time, during which the limbs retained a certain degree of flexibility, but were completely deprived of elasticity, and remained in whatever position they were designedly placed, previously, however, affording considerable resistance to the impulse applied, as if they were formed of lead, or some other soft metal. The muscles of the limbs appeared more

affected than those of the trunk or head, as it was easier, proportionably, to place the patient in the recumbent position when setting up, or, *vice versâ*, than to bend the arm when extended, or extend it when bent. The eyelids seemed little affected, as, though raised (being shut in a paroxysm), they did not remain open, but immediately closed themselves again. During the fits, there were slight convulsive writhings of the muscles of the face and hands. The eyes were not turned up as in epilepsy, but rolling about when exposed to the light for any length of time, the pupils dilating and contracting naturally.

She states (Feb. 7) that, before the paroxysms commence, there is a sensation of fluttering at the heart, general faintness, uneasiness, and heaviness of the head; and that, after these go off, she experiences universal soreness of the limbs, with severe pain, extending about two inches longitudinally on each side of the spine at the last dorsal vertebra, which situation is tender to the touch, and pained on motion. After each accession, she complains of severe headach, which, however, gradually declines during the intervals between the fits. Tongue whitish at its upper and posterior parts, and feels hot and sore. Pulse 70, natural during the intervals, but feeble and rapid during the paroxysms. Respiration in the interval natural, prolonged during the fit. The catamenia appeared at their last period, but were suddenly suppressed after exposure to cold.

She further states, as we have already mentioned, that on Wednesday, the 3d of February, her master's bell rung, and that on attempting to rise from her chair to attend the call, she suddenly stiffened, and remained insensible (as she was afterwards informed) for an hour and a half. At first the paroxysms continued an hour or more, but, at the time of writing, they are of much shorter duration.

The following is the Report of the physician who attended her previous to admission into the Infirmary:—

"Was found, on Wednesday morning, in a sitting posture, insensible, the skin of a livid colour, pulse very feeble, neck swollen, and face as if strangulated; the body remains in whatever position it is placed, the arm turning almost round in the socket.

"Was bled immediately to 24 ounces; blood covered with a buffy coat; head shaved, and a sinapism applied along the spine. Castor oil was given in the usual doses, and produced copious evacuations. On the second day had turpentine enemata, a blister was applied to the head, and a mixture with sol. of tart. emetic, and the sedative liquor, given with apparent relief."

Dr. Duncan commenced his inquiry into the nature of this case, by an investigation of the point, whether it was actual or feigned; and he had just arrived at the conclusion that the disease was entirely unassumed, when his hour expired. The substance of his further remarks follows:—Before, however, we pass to them, we cannot avoid noticing, and we do so with feelings of the most unmixed disgust, an unmanly, wanton, and barbarous experiment, practised on this unfortunate patient by an individual unconnected (we are happy to add) with the department of clinical medicine. It will scarcely be credited, but, nevertheless, it is strictly true, that during a paroxysm of insensibility, the person to whom we allude, *tore, with his nails, two separate pieces of skin* from the hand of the patient. She was not aware of the cruel and unwarrantable experiment at the time, but she feels its effects in the intervals, very acutely. It is satisfactory, however, to know, that but one feeling, and that of the most unequivocal reprobation, pervaded teachers and pupils, at this inhuman and unprofessional act.

For a week or more from this time, the case continued to present the same singular phenomena; but though occasionally referred to, it did not, until the 26th instant, call for any remarks of consequence, when, however, Dr. Duncan observed, that since the preceding lecture, the girl had suffered considerably from new and severe symptoms, at the same time that her original disease was rather increased than diminished. This he attributed, in a great degree, first, to the effects of fright, occasioned by the approach of a paroxysm, while she was leaning over the fire, and her consciousness of inability to extricate herself from this situation; and, in the next place, to the annoyance produced by the crowds of strangers and students, who were continually teasing her with questions about her disease. Dr. Duncan said he would read the statement of her recent symptoms as entered in the Journal. From the first he had no doubt but they were entirely nervous; yet, when he considered the extremely acute pain and tenderness of the right iliac region (afterwards described), he did not think it safe to rely on that opinion alone, in the treatment which he should pursue; for had the case proceeded to a fatal termination, he would, doubtless, have been exposed to the imputation of want of foresight and prudence, if he had neglected to employ the usual measures adopted in the treatment of abdominal inflammation. Besides (he continued), even were the symptoms nervous, as he supposed them to be, antiphlogistic practice, to a certain extent, could do no harm; twenty-four leeches were therefore applied to the situation of the pain, general bleeding being, he might say, impracticable; from the nature of the disease during the cataleptic paroxysm, the

operation could not be performed at all, while, in the interval, the violent jactitation and writhing caused by the pain rendered it extremely unsafe.

On the forenoon of the 15th instant, a little before the visit, she complained of a sudden and violent pain in the right iliac region, so severe as to cause her to scream and writhe in the bed; the affected part was exquisitely tender to the touch; her pulse quick and weak; her countenance peculiar, and tongue partially foul. A common enema was thrown up, but quickly returned without fæculent discharges; fomentations were applied assiduously, but without the least relief. During the afternoon, the paroxysms of catalepsy were extremely frequent, and during their presence she appeared free from abdominal pain, but, on recovering from them, she screamed out and struggled as before. At the evening visit, she was found in the same state of violent torture, the right iliac region still continuing acutely tender to the touch; no tumour was perceptible; twenty-four leeches were now applied to the seat of the pain, and bled freely; a fœtid enema was thrown up, but immediately returned; anodyne fomentations were also directed. After the rejection of the enema, two grains of opium were introduced into the rectum, and at ten, P.M., a draught was given, composed of ether. sulph., ʒi; liquor. sed., ʒss. The symptoms still continued as severe as ever, and the draught was repeated at one that night, and she was placed in the warm-bath. After the bath, the pain was rather increased, and at two o'clock she had another draught of tinct. castor, ʒi; Am. tinct. valerian. ʒij; tinct. opii, ʒi. Soon after this dose was taken, a general remission ensued, and she has since been free from pain or tenderness of the abdomen.

During this attack, several cataleptic paroxysms occurred, during which she seemed to feel no pain. At the visit before lecture, her chief complaint was of soreness of the abdominal muscles; her pulse 80; skin moderately warm and moist. From the accession of the severe symptoms at eleven A.M. 25th, until two A.M. 26th, she had taken 125 drops of sedative liquor, 120 drops of laudanum, and 2 grains of solid opium; and he, Dr. Duncan, was more convinced than ever of the purely nervous nature of the case, by the intermission which followed this narcotic treatment—in fact, he considered it one of the singular and strange forms which hysteria occasionally assumes, the expression of her countenance throughout had also more of the hysteric than the inflammatory character.

In the first week in March, Dr. Duncan again referred to the case, observing, that the girl had again become the subject of a severe and singular nervous attack, being the third time that her disease had assumed a new though temporary form; since the last mentioned circumstance of the acute abdominal pain, she remained for two or three days in her usual condition, being, occasionally, affected with the cataleptic paroxysms in a mild, though well-marked, form. On the 3d of March, however, she became acquainted with a distressing piece of private information which affected her extremely, and she desired to be dismissed; her request not being complied with, a severe paroxysm soon came on, and lasted for three quarters of an hour; having recovered from this, she complained of severe abdominal pain, and, in a few minutes, the cataleptic fit again recurred; several paroxysms had thus taken place before eight P.M., when one, more violent than any of the others, occurred, and continued till two A.M. following morning. During the last fit, the mental functions appeared to be maintained in considerable precision; she sung psalms, and prayed with exactness and correct modulation; and once having stopped short in repeating the Lord's prayer, she, in a few seconds, resumed it where she left off. The most extraordinary circumstance, however, was the singular action of the muscular system; at one time she was bent entirely backwards, resting only on the crown of her head, and her heels as in opisthotonos; again, she was bent forwards, and, finally, she was drawn forcibly to either side. In short, during this attack, all the phenomena of epilepsy, hysteria, and well-marked tetanus, were present. The treatment was nearly the same as in the aggravated paroxysm already noticed. Since three A.M. the next day, she has been comparatively free from pain.

In the course of this month, the patient was affected with modified small-pox; and at the lecture of the 13th of April, Dr. Duncan stated, she had been dismissed in a state of tolerable convalescence. Some general observations, which we did not obtain at the time, we now add.

The first evening after she became a clinical patient, Dr. Duncan read the case, as we have inserted it, and then observed, that before any observations could be rationally made on the extraordinary symptoms it described, their actual veracity should first be determined, especially since the existence of the disease they seemed to constitute, was called in question by many, and celebrated authorities. The singular phenomena believed to characterize it, had induced many persons to feign it, for various motives. One case was on record of a soldier, who pretended catalepsy, and played his part with so much determination, that in an assumed paroxysm, he underwent the

operation of trephining, without shrinking: he was accordingly dismissed as an invalid, and the imposture was soon after detected. He Dr. Duncan believed in the reality of all the symptoms reported to exist in the individual's case, at present under consideration, although he had not, and certainly would not put the patient to any severe experiment, to decide on her veracity; he would content himself by examining into the motives which could induce her to feign the disease, and into the question, whether the appearances it presented were such as might be imitated by an impulse of volition. Many motives could be enumerated which have led to the simulation of disease, and it was strange with what fidelity symptoms were copied by absolutely illiterate persons; he had known soldiers feign, to obtain discharge or pension; malefactors, in order to escape punishment; young ladies, apparently to attract notice, and for no rational reason whatever. Now, in this patient, he could not detect any adequate motive for the imitation; she had no punishment to escape, no unpleasant contract to be discharged from, neither was she in that rank of life in which caprice, or the desire of attracting attention, could be supposed to influence her conduct; in fact, on the contrary, she was represented to be a sober, industrious servant, and contented with her situation in every respect; as such he did not think it at all probable she would, for mere whim, undergo the privations of a hospital, and the operation of the most disagreeable medicines. As he before said, it was usually the most remarkable diseases which were thus designedly copied: he knew of a young lady who pretended severe illness, with symptoms of stone; and accordingly, on examination, stones were found in abundance, not in the bladder, but in the vagina, into which, of course, she had wilfully introduced them. Some time since, two brothers were sentenced to death, for robbery, by the High Court of Justiciary in Edinburgh; and one of them, after conviction, exhibited signs of the most perfect insanity; he was of course suspected, and narrowly watched; holes were even made in the roof of his cell for the purpose; but his deportment was that of a maniac even while by himself. At length his pardon was procured, and he left the prison; but in a short time became sensible enough to commit another robbery in Glasgow, for which he was brought to trial, found guilty, and executed. In both these cases, however, there was a sufficient motive for the pretence; but in *Anderson* no reason for suspicion existed, except the singularity of the disease.

The next subject of inquiry, he (Dr. Duncan) considered to be, whether the symptoms she exhibited could be feigned by volition *at all*; and if the conclusion was, that they could not, it necessarily followed that they were the result of some morbid excitement. To determine this point, during the paroxysms, she was placed in various uneasy attitudes for a considerable length of time, and she never evinced the slightest tendency to change her position; her arms were placed in directions diametrically contrary to the influence of their specific gravity, yet no trembling was observed, and the limb remained firm as long as the paroxysm lasted; this he (Dr. Duncan) believed to be altogether impossible, as an imitative or feigned act. On some occasions too, certain motions took place, which he conceived still further corroborated his opinion of the reality of the disease, namely, an indescribably rapid, alternate pronation and supination of the hands, like the movements of an expert fencer; movements so difficult for the inexperienced to imitate, that they went far to strengthen his opinion.

Dr. Cullen (Dr. Duncan continued, in his further observations) was one of those who looked upon catalepsy as invariably feigned; he stated also, that the fact of the patient maintaining her limb in a position contrary to its specific gravity, was one of the strongest arguments in support of the true character of the disease. If a strong muscular individual make the experiment, in a very short time tremblings and palpitations are observed; and Dr. Wollaston, who examined particularly into the phenomena of muscular contraction, observed, that such movements took place even in tonic spasms of the limbs. Another point might also be investigated: whether she could know enough of the described symptoms of catalepsy to enable her to represent them as accurately as she did. Malingerers, however perfect in other respects, almost invariably failed in imitating the *termination* of spasmodic diseases, unless, in fact, perfectly familiar with their phenomena by scientific observation; they did not take the mode of recovery from the fits natural to the case. In the present case, the resuscitation from the cataleptic paroxysm was exactly such as Joseph Frank, of Wilna, Sauvages, and others, had described, as taking place gradually; the eyelids first starting, and then a deep inspiration being made. Since the preceding lecture she had been submitted by himself (Dr. Duncan) and others, to various experiments, his own being confined to the trial of various changes of attitudes. John Hunter's celebrated experiment (namely, suspending a weight to the extended arm during a paroxysm, then cutting the string, and observing whether the limb sprung up as it fell), he (Dr. Duncan) did not try, for he placed very little confidence in its results; there was no doubt

that the extended arm of a statue would not exhibit a recoil if similarly acted upon, but he could not expect, even in perfect catalepsy, that the laws of muscular elasticity should be so far suspended or abolished, as to permit the arm to remain perfectly still, after being freed from a depressing mechanical power. On this topic he had but one other observation to make; in his absence from the ward, and during the absence of the clerks also, some person had the cruelty to pinch a portion of skin from the hand of the unfortunate patient, during a fit; severe and barbarous as the test was, she stood it without shrinking; it was needless for him, he said, to remark at length on such conduct; he would only say, that the scepticism which put in practice such means of investigation, was far more prejudicial than conducive to the interests of science.

The symptoms of the case viewed together, might be arranged under the following heads: 1st, total loss of external perception, and sensation; 2ndly, suspended volition; 3dly, the continued action of the mixed and involuntary muscles. It was a matter of speculation, whether the functions of the mind were also suspended or not; of their continuance, as yet there had been scarcely any evidence; at the same time there were no grounds sufficiently conclusive of their temporary absence. During the fit, there was a complete semblance, to the view, of sound and healthy sleep; her sleep, however, differed considerably from natural repose; healthy sleep was that, consecutive of exhaustion, or the necessity for which was occasioned by extreme mental exertion; under ordinary circumstances, too, it was gradual in its approach. Morbid sleep, on the other hand (under which cataleptic and epileptic sleep and somniation were included), was sudden in its seizure, and independent of previous exhaustion or periodical habit; the varieties of morbid sleep were again distinguishable from each other by the mode of resuscitation, the state of the muscular system, the presence or absence of mental phenomena, &c. Thus, in epilepsy, the fit departed gradually, and left the patient in a state of lethargy, or sopor; in catalepsy, the awaking was comparatively immediate, and during the fit the muscles were in the state of rigidity characteristic of the disease; in somniation, the awaking was also sudden, but the sleep was accompanied by speaking, singing, extravagant gesticulations, and other marks denoting the presence and activity of the mental functions. In this patient, therefore, the cateleptic state was indicated by the mode of awaking, the muscular rigidity, the insensibility during the paroxysm, and pain and external noise. Some of the phenomena ascribed to somniation were also present in this case, such as singing, prayer, and gesticulation, all of which had occurred during some of the fits since the preceding lecture.

As to the proximate causes of the symptoms, Dr. Duncan said, he could afford no precise information: the subject was vague, perhaps inscrutable; and all that could be said of it was, that they depended, probably, on irritation of the nervous system. Dr. Duncan was then proceeding, with some remarks on the proper treatment of the case, when the hour expired, and he was again interrupted. Before concluding, however, he referred the class to Sauvages' Nosology, for the best collection of diseases of this kind. He passed a high encomium on the work, as well for the merit of its classification, as its great practical utility. With respect to Cullen, he observed, that he had also acquired great celebrity for his system of nosology, but that, as a practical one, it could not be compared to that of Sauvages; it was, he said, completely and perfectly arbitrary in its arrangement, neither containing a natural description, nor a collocation of disease; for in it were to be found, classed together, diseases most opposite in nature, and requiring the most different methods of treatment. Cullen, in his notice of catalepsy, had placed it under the apoplexies; from which, in reality, it differed as broadly as black did from white. In Sauvages' work, on the other hand, a variety of affections were described, to which the symptoms of the present patient might be referred; of these he, Dr. Duncan, thought the "Catalepsis Hysterica," agreed best with the phenomena here witnessed. For an interesting account of cases of this disease, Dr. Duncan referred to the 2nd part of the *Praxis Medicæ Universæ præcepta auctore Josepho Frank*, Professor of Clin. Medicine in the University of Wilna, with this caution, that Frank was an implicit believer in the doctrines of animal magnetism; and in that work gave cases of its therapeutic powers, too strange for belief, and yet too confident to be flatly contradicted.

The subject of this patient was not resumed until the period of her dismissal from the Infirmary, which took place at her own wish, and after considerable improvement had taken place in her health, on the 31st of March, when Dr. Duncan took a review of the case for the purpose of detailing the treatment which had been pursued, and on which point he was previously interrupted.

Since the case first came under his observation, Dr. Duncan then observed, its symptoms and character had very materially altered, and in the review of them which he now proposed to give, it would appear, that in their progress they were referable rather to a modified form of hyste-

ria than to any other disease. As the case proceeded, the paroxysms became more and more accompanied by gesticulations, speaking, singing, and praying, and instead of the rigidity peculiar to catalepsy, various motions and changes of posture were observed. The form of hysteria was more of the epileptic kind, because, in all the paroxysms, the patient was perfectly devoid of consciousness and sensibility. The distinction attempted to be formed between catalepsy and hysteria, depending on the insensibility of the patient in one and not on the other, Dr. Duncan did not consider as at all correct, as many cases of pure hysteria occur in which the patient is, for the time, completely insensible to all external impressions; the diagnosis was rather, he conceived, to be founded on the temper of the individual, the sex, the presence of globus, and the several circumstances connected with that Protean disease. All these were subsequently developed in the present patient. She also acquainted him with a fact not previously known, that she had been frequently affected with paroxysms of a decidedly hysteric kind. The remedies, too, which relieved these paroxysms were such as were known to be most effectual in that disease, such as antispasmodics and narcotics, with purgatives, &c. The same remark also applied to her illness while in the Clinical Ward, for the medicines and external applications employed there, were just such as would be calculated to relieve hysteric affections.

She was admitted on the 5th February; the first decided step of treatment was on the 7th, when the shower-bath was employed, and seemed to produce decidedly beneficial effects; this remedy, however, was not persisted in, for though at first apparently useful, it was subsequently found to be attended with an aggravation of many of her symptoms. On the 10th, the paroxysms became very frequent, and the gamboge pills were ordered, under the idea that the increase depended, in some degree, on a retention of faeculent matter; accordingly, several pitchy, fœtid stools were procured. On the same day the oleum luccini was given, as one of those fœtid medicines whose influence over diseases connected with the nervous system has been established by ample experience, though the theory of their mode of action still remains in considerable obscurity. It was also found necessary to introduce the catheter. The result of this practice was, that she remained almost free from paroxysms on the three subsequent days. On the 15th, the symptoms become again severe, and a blister was directed to be applied to the nape of the neck; the gesticulations and movements, however, became so active in the course of the day, that the blister was countermanded, Dr. Duncan dreading that the probable friction of the abraded surface might give rise to troublesome sores. He had often, he observed, known gangrene produced in even vigorous subjects under analogous circumstances, and the caution, he continued, was worth bearing in mind, that blisters, though often decidedly indicated by the symptoms of a disease, were often as decidedly contra-indicated by external circumstances, over which the physician possessed no control. The purgative treatment was, therefore, continued and an assafœtida injection thrown up; some relief was obtained, and by the next day the severity of the fits had abated; she complained then of tenderness of the superior regions of the abdomen; leeches were accordingly applied to the epigastrium; they bled well, and the tenderness was soon no longer complained of. From this day (16th) till the 23d the paroxysms were few and slight, but in consequence of a fright her disease then returned with redoubled severity, the paroxysms being more prolonged, and interrupted by unusually short intervals. This circumstance lent additional strength to the opinion, that the case was closely connected with hysteria, fright being one of the exciting causes of that affection, and being known, in numerous cases, to bring back hysteric fits in individuals long free from the disease. Examples of this kind he had frequently observed himself, and he related one, unnecessary to report in this place. In speaking a little before of the *bad* effects of the cold affusion (Dr. Duncan proceeded), he had anticipated the circumstances in some degree, as on the first trial it was rather disagreeable than injurious, and was accordingly omitted, and other means employed; but it was on the following occasion that the bad effects were ascertained. On the 23d it was directed, and, as at first, considerable benefit seemed to follow its use, though the patient still disliked it greatly; it was repeated next day, and, immediately after, the most violent paroxysm set in which had yet occurred. It was, to be sure, possible that this exacerbation was not caused by the shower-bath, yet this appeared extremely probable, and, consequently, that part of the treatment was finally abandoned. A most distressing symptom now supervened, namely, intense and insufferable pain in the hypogastric region—so agonising that she screamed incessantly, and was only tranquil when the paroxysm of catalepsy or hysteria set in; in fact, the accession of the fit became desirable to every body, on account of the temporary relief it afforded to her tortures. The warm bath, fomentations, opiates by the mouth and per anum, were tried in vain, and after this state had continued one night,

twenty-four leeches were applied to the seat of the pain, which bled freely, but without relief. The cause of this dreadful condition, Dr. Duncan felt great difficulty in determining; the urine was freely voided, and the state of the bladder, moreover, ascertained by the repeated introduction of the catheter; the bowels were constipated, certainly, and drastic purgatives were given without the slightest benefit; yet he did not consider the phenomena as depending on colica, for, besides being increased by pressure, it occupied, almost exclusively, the right inguinal and hypogastric regions. Women were very liable to these affections, and he confessed they appeared to him perfectly inexplicable. Simultaneously with such pains, small tumours were frequently stated to appear suddenly in either groin, and though considerable doubt had been thrown on the occurrence of these tumours, yet, from the repeated complaints made to him concerning them by different patients, and from actual examinations he had instituted on some occasions, he was satisfied concerning their actual existence. They usually are of the size of a walnut, or pigeon's egg; sometimes smooth, at other times irregular; they resist pressure, and spontaneously and rapidly disappear. The girl under consideration was more than once so affected while otherwise in perfect health, their appearance being accompanied with very severe pain. That they were not hernia, he had ascertained by the most careful examination, and the only opinion he could offer on their nature was, that they might, probably, consist of flatus pent up between two spasmodic contractions of the large intestine. Of one thing, at any rate, he was convinced, that was, that they were *internal*, or situated beneath the muscles, which constitute the parietes of the abdomen.

On the 26th, her sufferings were more than ever severe, and a narcotic system of treatment was entered on with the activity and energy which the symptoms demanded. The antiphlogistic system was also, to a certain extent, attended to, more for precaution sake than from any conviction of its actual necessity. In order to procure evacuation of the intestines, 1lb of linseed oil was thrown up the rectum, and a dose of ʒi of castor oil, and iij drops of croton oil, given at the same time, without effect. Next day (the 27th), some stools were procured by a common enema; they were extremely dark and fœtid. About this time the micturition became again severely affected; the catheter was accordingly introduced, and four lbs. of urine were drawn away, but without any diminution of the hypogastric pain, showing that it was not connected with the distended state of the bladder; in fact, the character of the pain was purely neuralgic, not inflammatory, depending exclusively on nervous sensation, and not connected with any organic alteration. At this period of the disease, Dr. Duncan further remarked, he was induced to connect it principally with a certain inexplicable condition of the nervous system, and with a flatulent state of the intestinal canal. With these views he, for a short time, directed the carbonate of iron, but not perceiving any marked advantage from its use, he soon gave over its administration. The ammoniated alcohol was also tried, and with a certain degree of utility, as a quantity of flatus was expelled under its employment, and she received considerable though temporary relief.

She continued tranquil, comparatively speaking, from this till the 5th of March, when sitting by the fire she was seized with the cataleptic paroxysm in the usual way. During the day it recurred with unusual frequency, and towards evening she became again affected with torturing abdominal pains; hot fomentations were applied, and eleven drops of the sedative liquor administered. Soon after a paroxysm came on, attended with all the phenomena of violent tetanus; it lasted four hours, and during that time (the muscular system being in a state of cataleptic rigidity) she sang hymns and repeated the Lord's-prayer in a perfectly rational manner. After this she remained quiet till the 8th of March, on the evening of which day it was reported, that she complained of a sudden pain in the loins having occurred after a slight exertion; the lumbar regions, too, were stated to be painful on pressure: she spent a restless night, and had some fits, but of a mild character, accompanied with singing and praying. On the following morning she complained of headach; general muscular pains, with thirst; her pulse was frequent; bowels confined, and she said that she had shivered much before the visit. All these symptoms constituted the eruptive fever of the varioloid disease, contracted, perhaps, by contagion during her residence in the clinical wards. An emetic was given in the evening, which operated in the usual way; she slept a little, and had several fits. Next morning the feverish symptoms were on the increase; the pulse 120, full; tongue white; alternate chills and flushings; skin dry, and bowels confined; the fits also recurred frequently. This Dr. Duncan considered deserving of peculiar attention, as it will immediately be seen that they were suspended during the presence of eruption, though it was rather to have been anticipated, that if suspended at all, it would be during the general excitement. On the third day of the fever the small-pox appeared, and after that day no fit took place till the erup-

tion declined in due course; a remarkable example was thus afforded of the suspension of one disease by the supervention of another. Such an occurrence frequently took place in other instances, but it was peculiarly strange where the affections were so totally dissimilar, as in the present instance. The small-pox having run its usual course (the eruption was entirely distinct, and vaccination had been performed in early life), on the 20th March, the eleventh day after the accession of the eruptive fever, the fits returned, but in a very mild degree. All symptoms of febrile, or inflammatory disease, being now at an end, he decided on giving the alcoholic extract of nux vomica a fair trial. Accordingly, on the 21st March, three grains were given, at three doses, and their use was followed speedily by considerable stupor and griping pain. The same dose was again repeated the ensuing day, and general languor, debility, and other symptoms of narcotism, were induced. The remedy was now intermitted, and she gradually improved in health till the 31st of March, when she was dismissed, by her own desire, having been for several days previously free from paroxysms altogether.

In conclusion, Dr. Duncan observed, that uniting, as this case did, the marked and essential characters of catalepsy, with many of the features of hysteria, it was more than probable that mental excitement, or, perhaps, too severe bodily exertion, might induce a return of the complaint. When she left the ward the ancles were œdematous, and every evening she was, for a short while, affected with a tympanitic distention of the abdomen. On the whole, however, her general condition was greatly improved. Since her dismissal she has attended on two or three occasions, and stated, that on the first day after she left the Infirmary, she had one fit on her return home, but that since then she has had no further re-accession; her ancles still continue swollen, but her appetite is good, bowels regular, and the other functions healthfully performed.

April 19. The girl returned to the clinical ward yesterday, with all her symptoms nearly as violent as ever.

London Medical Society.—The meetings of this Society will close, for the present session, on the 31st of May, and recommence in the ensuing September. The attention of the members was chiefly occupied on Monday evening last by a discussion on the treatment of intestinal disorders in infants; a prolific subject for debate, and one which produced as many gradations of opinion as there were speakers.

CLINICAL LECTURE

BY

Dr. ELLIOTSON.

Delivered at St. Thomas's Hospital, May 17th.

HYDROPHOBIA.

Gentlemen,—As we have all now our separate wards, so that we each admit fresh patients every week,* and not as formerly, once in three weeks, I purpose to make hereafter the cases discharged or deceased every week regularly the subject of the clinical lectures, reporting to you at the same time the number and nature of those admitted, and speaking from time to time of any which may still be remaining in the hospital and deserving particular attention. On the present occasion I shall deviate from my established custom of lecturing upon my own cases, as one of a very unusual nature has occurred; so rare, indeed, that I have had but a single instance of it in my private practice, and only one in the hospital, and it is possible that many years may elapse before the occurrence to myself of another. I have, therefore, requested Dr. Roots to permit me to lecture upon it this morning.

On arriving at the hospital on Thursday last, I was told that Dr. Roots wished to see me immediately in Luke's Ward, as he had admitted a case which he was convinced was hydrophobia. He nevertheless wished to know if my opinion coincided with his own. On reaching the ward, I found a boy, named William Charles, aged sixteen, with a full and flushed face, much marked with small-pox, lying in bed on one

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* The hospital contains nearly 500 beds, of which 344 are appropriated to the ordinary patients, and 151 to those afflicted with the venereal disease; the latter are all in the hands of the surgeons, differently from the rule in Edinburgh, where the physicians, we believe, have the charge of them. The remaining beds are equally divided between the six physicians and surgeons, each of whom has his patients, as far as is possible, in separate wards. Dr. Elliotson has the whole of William's and nearly the whole of Jacob's for the men; and the whole of Mary's, with the exception of four beds, for the women. The medical out-patients are seen by a fourth physician called the assistant, and the surgical by the surgeons in turn. The in and out patients together, during the last year, amounted to 24,070.

side, with the bed-clothes nearly up to his mouth. He was resting perfectly still, but on my attempting to raise the clothes from his face and neck, he suddenly fetched a deep breath, then seemed half choked, and about half a dozen such sobs occurred in very rapid succession, his countenance expressing at the time extreme distress, and he piteously entreating that I would desist: of course I did so. I then attempted to take hold of his wrist, which was under the bed-clothes, for the purpose of feeling his pulse, when the same occurrence took place, as a slight wave of air was necessarily induced upon his face by the attempt. Again, while he was lying quiet, with his head partly under the bed-clothes as before, and having *his eyes closed*, I held my hand, with the points of the fingers extended towards his forehead, and on merely bending the fingers down towards the palm of the hand, keeping the arm and all the rest of the hand perfectly still, sufficient agitation of the air was produced to make him instantly open his eyes, take a sudden inspiration, feel choked, experience a succession of convulsive sobs, and express the same agony of countenance as before, asking me why I did so, and imploring me not to draw the wind upon him in that way. I could not hesitate for a moment to coincide with Dr. Roots as to the nature of the case.

The following account was given me of what had taken place:—The boy had been brought to the hospital that morning by his mother, on account of a difficulty of breathing, and it was stated that he had fallen down while carrying a sack of coals on board a barge a week previously, and hurt his chest. Dr. Roots, after his coat and waistcoat were unbuttoned, and his shirt was opened, touched the part of his side where he said he had been hurt, when he instantly shuddered, and a catching of the breath ensued. An examination was made to ascertain whether this pain was occasioned by the fracture of a rib, or by some other cause, but nothing was discovered, and twelve ounces of blood were taken from the arm. While standing by the patient during this operation, Dr. Roots pulled out his snuff-box; the agitation of the air occasioned by this action, produced a similar affection of the organs of respiration, as I have already stated I produced myself. Dr. Roots, in consequence, at once suspected the true nature of the case, and ascertained that a draught of air invariably had this effect. A looking-glass was sent for, and the reflection of light cast from it upon the boy's face, produced the same sudden inspiration and convulsive sobs. He gazed at it intently for a few seconds, hid his face with his hands, desired it might be removed, and was then seized with the affection of the breath. Some milk was now brought him to drink, but the sight of this produced the same effect as the cold air and the looking-glass. Upon further inquiry it appeared, that before Dr. Roots saw him, his mother had taken him into the apothecary's shop, which he refused for some time to leave and go to the ward into which he was admitted, declaring that he could not bear the cold air out of doors upon his face. His mother also stated, that he had been poorly for the last day or two; she hardly knew in what way, but said he had been very irritable, and complained of pain in the shoulders and breast. She further stated, that early on the morning of his admission, he had gone into a room where his brother and sister were quarrelling, and when she came in to interfere, the draught of air caused by the sudden opening of the door, produced such an effect upon him, that he rushed out of the room as if he were mad. It was the frequent return of the difficulty of breathing that induced her to bring him to the hospital.

I was of course very cautious in making inquiry respecting any bite which he might have received, and I began by asking if he had been hurt in any way; but though this was only in a whisper, and behind several gentlemen who were standing at the bedside, I immediately learnt that there was no occasion for reserve on the subject, as he was quite indifferent to the matter. He denied to me having been bitten by any dog or cat, or, indeed, having been in the way of receiving any such injury. As he not only had pock-marks, but was even seamed by the small-pox, it was impossible to say whether any of the scars upon his face and hands were attributable to another cause. Upon inquiring afterwards of a little boy, one of his acquaintances, I learnt that the patient possessed a dog, which I desired to be brought to the hospital. It is, however, at present in perfect health, though this does not prove that the dog may not have been the cause, as animals have communicated the disease while apparently in perfect health, not showing any signs of rabies until afterwards. This companion also stated, that the patient, about three months before, had killed a cat for having, as he said, eaten part of his breakfast; that he put her into a cask in which a dog was chained; that he interfered while the dog was destroying her; that he was scratched or bitten by the cat, and that he had afterwards eaten the rest of the food which the cat had left. But whether there was any truth in his assertion that the cat was mad, or that he had killed her as a punishment for eating his breakfast, may be doubted, as the little boy, who knew him from working with him at the same place, added that he was a vicious fellow, always tormenting cats and dogs, smearing

the tails and backs of cats with oil of turpentine, and setting them on fire, and that he was exceedingly passionate.*

As it was desirable that the boy should be kept as tranquil as possible, he was removed from the ward into the private room of sister George. Dr. Roots recollecting that there was sufficient evidence of the failure of all the narcotics employed in this country, and that lead had been spoken favourably of, and had not, at any rate, been *repeatedly* tried, intended at first to treat the case with the latter. Some of the superacetate dissolved in a minute quantity of water, was put upon a lump of sugar and offered him in a teaspoon, but he absolutely refused to swallow it, declaring that he could not; and becoming so distressed at the request that the sudden inspiration followed by convulsive sobs took place, and he was greatly agitated. It was determined, therefore, to give the lead in a clyster; but as it was desirable that the bowels should be cleared before medicines were administered in that way, an injection containing some ounces of oil of turpentine was administered, containing, however, a portion of lead. In order that as little time as possible might be lost, and to introduce still more of the lead into the system, the cutis of the chest was denuded by producing a large vesication through the medium of a flat-bottomed metal bason, filled with boiling water, placed upon it for a few moments, and some lint moistened with the solution of lead was applied. Mr. South coming into the ward reminded us that the *guaco* was said to be an absolute specific for hydrophobia, and as its virtues had never been put to the test in this country, and the qualities of lead were, after all, doubtful, Dr. Roots, very properly, instantly determined on putting the powers of this plant to the test, provided any of the juice could be procured. I now recollected that Sir Robert Ker Porter had given some of the expressed juice to the College of Physicians, and I instantly wrote a note for it, thinking that the article could not be put to a better purpose. Mr. South volunteered fetching it, and Mr. Whitfield volunteered his chaise to convey Mr. South.

At about half past four, the guaco arrived, and the following is the report of the case from that time. Before reading the report I should remark, that the administration of the enema and the production of the vesication, necessarily produced severe attacks of the affection of his respiratory organs, and violent general excitement; but from the time that I first saw him, he lay still in the intervals when not disturbed or interfered with, and was as calm as a person under ordinary circumstances, showing, however, a desire to be left alone and remain quiet, occasionally having a catching in his breath and a sob; as he lay I had thought the pupil rather dilated; the pulse ranged from about 80 to 96, of a natural character; the heat was natural, and the face, as I have already mentioned, rather flushed.

At half past four, then, the guaco juice was brought, but as he refused to swallow it, two ounces were injected per anum. This appeared to produce an effect, for he remained tranquil for some time after, and seemed disposed to continue so. The slumber, however, was unsound, and disturbed by the slightest noise, and the return to consciousness was accompanied on every occasion by a violent pain in the throat, and by convulsive sobs. He would start from his recumbent posture, wrap the blanket around his body to exclude the air, and with the most agonising expressions of countenance, labour for several seconds convulsively for breath. With a view to obtain, more effectually, the virtue of the guaco, some moistened leaves of it were applied to the chest. The moisture at first distressed him, but he made a great struggle to permit this procedure, and the leaves were at length put on, and when there he expressed himself pleased with their presence.

Six o'clock. The paroxysms have returned more frequently, and it was proposed to him to have the chest again moistened; the proposal, however, was too much; for starting, as usual, from his recumbent position, he relapsed into a most violent fit. Refusing thus obstinately, it was resolved to apply the remedy by force, but the sound of the moistening of the leaves was sufficient to produce the usual awful train of symptoms.

Half past eight. The paroxysms continued to return with great frequency until this time, when he was visited again by Dr. Roots. Before, however, the Doctor came, a lighted candle had been brought into the room, and this excited him in a most frightful degree. The effect was in-

* It came out in the the evening, after the above lecture was delivered, when persons who had known the patient, and had not been seen at the hospital, were examined on the coroner's inquest, that he had been bitten by two dogs, and by one respecting which there are some suspicions. It was a strange terrier which he had picked up in the street at Christmas last, and carried home to his master's with the intention of keeping it. During the night, on account of the dog's making a noise and gnawing the door, the boy went out to quiet it, and was bitten in the hand; the dog was afterwards driven from the premises, and has not since been seen or heard of by the boy or his master.

stantaneous; for, though unconscious that it had been sent for, the moment the first ray from a distance entered the room, he sprang, as before, convulsively from his bed, and exhibited his usual fit. The secretion of saliva had now become more than naturally abundant, and he spat it, without any care, about the room. Dr. Roots ordered the throat to be covered with a plaster of the extract of belladonna, and that the guaco should be administered, if he would take it, by the mouth every hour. He suggested, too, that a strait-jacket should be employed.

Eleven o'clock. The medicine was, as ordered, administered every hour; and though it required great exertion on the part of the patient to take it, he contrived to do so. It was always necessary to prepare him for the effort of swallowing his medicine, by stating that it was time to take his medicine. He would then request his back to be supported by an assistant, and that the moment he had swallowed the fluid the assistance might be withdrawn, and he be allowed to fall back. In this way he was sustained behind, while a second assistant held before him the liquid in a small bottle. The anticipation invariably produced a spasm; but, after that had subsided, he would prepare himself for the awful effort. The eye would turn, from time to time, with an expression of intense fear, till, in a moment of frenzy, and with the rapidity of a bird pouncing on its prey, he would dart at the vessel, and then, swallowing the fluid, fall back on the bed in a violent spasm. This effect was usually so violent, that, with a convulsive spring, he would strike his head against the head-board of the bed.

Twelve o'clock. The prepared juice of the guaco, obtained from the Coll. of Physicians, having now all been used, a quantity of the extract, which had been sent to the hospital by Mr. Cæsar Hawkins, was had recourse to. A drachm of this was rubbed down in an ounce of water, and was administered and taken by him in the usual way.

Friday, one o'clock A.M. Passed the last hour much more tranquilly than any since his admission, but it would be difficult to say whether this was an effect produced by the medicine, or by the greater quiet and stillness of the room.

Two o'clock. The medicine repeated. During the last hour, an occurrence took place worthy of notice. It was supposed, from the long calm and quiet he had enjoyed, that he was sleeping. His eyes, it is true, were open, but the hands of another person had been passed before them, and he had shown no sign of notice. At this time a glass of water was brought into the room for one of the attendants, and placed on a chest of drawers, but as soon as it was there, the wretched patient could be heard labouring to suppress the rising convulsion, till, unable any longer to restrain himself, he sprang as usual from his bed, and after an agonising struggle for breath, shouted, as soon as he had obtained it—"The water; away with it!"

Three o'clock. The medicine repeated. In the course of the last hour, he has had several attacks. During one of them—roused from his state of stupor (for it could not be called sleep) by one of the attendants crossing the room, he leaped from his bed, and rushed frantically against him, giving vent to some incoherent expressions of anger, though, immediately on retiring to bed again, he apologised for what he had done.

8 o'clock. From this time to 8 A.M., the medicine had been repeated every hour, and two enemas injected, but the spasms were very frequent in their recurrence. It should here be remarked that the sound of urine, and the sound *and sight* of his own water, did not disturb him; for a chamber vessel was used without reserve by those who were in the room, and once by himself without any distress. The pulse through the night was now about 130 and 140.

Half past 8. Dr. Roots again visited him. His opinion was, that the symptoms were all aggravated. The lighted candle was again brought in, and its presence again convulsed him. It appeared, however, that in this there was a great deal of imagination; for, engaging his attention in other matters, Dr. Roots brought the light eventually close to the eye, without occasioning much disturbance. There was another object in using the lighted candle, which was, to discover the condition of the pupil. It appeared extremely dilated, and did not contract on the close application of the candle; but it would be difficult to say whether this was the effect of the disease or of the belladonna applied to the throat. Dr. Roots asked him what he would take as food, and at his request an egg and some porter were procured for him.

10 o'clock. Since the last report the convulsions have been very violent and frequent, and he has shown more irritability of temper. He spits incessantly, and the countenance has become much flushed, and violent in its expression. Within the last hour, too, a fresh symptom has manifested itself, namely sickness. This has been extremely violent. He has, too, been troubled with a great deal of flatus.

12 o'clock. During the last two hours it can only be said, that the symptoms have in every degree increased.

At one o'clock his irritability had aug-

mented, the secretion of saliva was excessive, and he cast it about him in every direction. An enema of gruel had been exhibited about half an hour before, and had distressed him a good deal by the frequent inclination to stool. Another enema of the guaco, as he refused to take it by the mouth, was proposed; this incensed him to a great degree, and it was necessary to threaten him with straps. His legs were secured, and on proceeding to confine his hands he, for the first time, showed a disposition to be vicious, for collecting the saliva in his hands, he discharged it in the face of the attendant. It was then deemed necessary to secure him with the strait-jacket. Indeed, while evincing this vicious inclination, he earnestly requested to be secured, stating that he was losing his senses, and was then almost mad. No sooner, however, were his legs liberated, and one of the attendants had retired for the jacket, than, keeping the others from him by spitting and throwing his saliva upon them, he suddenly sprang out of bed, seized the large syringe which was filled with an injection of turpentine, and advanced against those present, spitting and discharging its contents at them. The gentlemen present thought it prudent to retire for a moment, and forgetting that the key was inside, shielded themselves behind the door. This he instantly closed and locked. In the short space that intervened before it was burst open, he had tried the window, which was secure, and it would appear, had climbed upon the drawers; but he returned again to open the door, though before he could accomplish this he fell from exhaustion. When the door was forced he was found lying, just within, in a state of insensibility. He was then removed to bed and confined with a strait-jacket. From this time a great change took place. Instead of fearing to eat and drink, he called for both food and liquids, which he consumed freely and without difficulty. The vomiting, however, continued, and whilst eating voraciously, he continued to retch, but this he made great efforts to suppress, and often chewed again and re-swallowed his own vomit. His mind at this time was in a state of great excitement. It could not be called aberration of intellect: it was ungovernable fury.

At about a quarter past three P. M., Dr. Roots again visited him. His countenance had, within the last ten minutes, undergone a considerable change for the worse; it was livid and congested; the temporal artery could with difficulty be felt. He could not, however, be supposed, by any of his symptoms, and especially not from the strength of his exertions, to be so near his death, and another dose of the guaco was offered him. With a view, also, to allay the morbid irritability of the stomach, two drops of medicinal, or diluted, prussic acid were mixed with it.

The medicine had scarcely been placed in the mouth and swallowed, before a surprising change took place. The eyes were sternly fixed "on vacancy;" the lips became purple; the corners of the eyebrows elevated and contracted; and a spasmodic action passed over the whole face; the alæ of the nostrils dilated; and then, with a forcible extension of the whole body, he fell back and expired without a sigh or a groan.*

This, Gentlemen, was a well-marked case of hydrophobia. It presented nothing *peculiar*, but was an excellent *illustration* of the disease. Although the name is derived from the dread of fluids, which the patient entertains, whether attempted to be swallowed or touched, or even when merely seen, this terror is but one symptom of the disease;—the most obvious, perhaps, to a common observer, but one which has sometimes, in a great measure, been absent, which, in most cases, intermits during the disease, and sometimes at length ceases, and which occurs also in some other affections, particularly in violent inflammation of the pharynx and surrounding parts. The present patient swallowed altogether, during his disease, a large quantity of fluid, and frequently asked for it; indeed, I have seen a patient take a bason of bread and milk not long before his death, without any difficulty. Rabid dogs likewise have drunk to the last, and swum across water. In fact, the difficulty of swallowing respects not merely liquids, but solids also. The present patient refused to take even a lump of sugar into his mouth. The most characteristic, indeed the peculiar feature of the disease—that which is, perhaps, pathognomonic—is the effect produced on the diaphragm and muscles of the throat by the slightest draught of air, the smallest sudden drop of fluid, or even by the slightest sudden touch, that may be made with the finger upon any part of the body. It was a knowledge of this fact which led Dr. Roots to discover so early as he did the nature of the disease; and I must remark, that I think it reflected great credit on his carefulness and his sagacity. Had he contented himself when the boy complained of difficulty of breathing, and mentioned having struck his side, with merely telling the lad to take a deep inspiration, and merely pressing his side with his hand, he would not, perhaps, have understood the case; but by exposing the patient's chest, and standing by to make observations while blood was taken from the arm,

* The bowels had not been opened whilst in the house, excepting the return of the first enema.

he came to a knowledge of the effect of air blowing upon the patient: and had he not been acutely alive to this characteristic mark, had he not known that this was at least as peculiar to the disease as the effect of the attempt at swallowing fluids, he would have allowed it to pass unheeded, and might not, until the next day, been informed that the patient had manifested a dread of liquids. He however at once saw the nature of the disease, and then ascertained the effect of an attempt at taking fluids into the stomach, merely to corroborate the justness of his opinion. The effect of the cold air, etc., even that of a fly settling suddenly upon the skin, of a sudden strong light, the least agitation of the bed or bed-clothes, very much resembles that produced on us all, upon stepping into a cold-bath. A sudden and involuntary inspiration is made, followed by several shorter ones; and, in a case of hydrophobia, the muscles of the throat are, at the same time, violently contracted, so that the glottis violently closes, and the attempts of the diaphragm to descend, and of the muscles of the chest to elevate the ribs, are frustrated from moment to moment. The closure of the glottis, however, is not continuous, but alternates with relaxations of the muscles, so that a succession of sobs takes place. These convulsive actions of the muscles of the glottis, and indeed of the throat in general, are dreadfully violent. Thus the patient is not merely distressed with the horrid feeling which causes him, first suddenly to inspire, and then to sob, and with the agony of the successive interruptions to breathing, but with actual violent pain in the convulsed muscles. These acted so violently, that his head was drawn down towards the chest, at the moment of sobbing, and the front of the neck became rigid and furrowed by the tension of the fibres beneath the skin; and I observed him, at these moments, press against the lower jaw with the inside of the thumb and fore-finger, for the purpose of preventing its forcible descent. The attempt at swallowing, and the sight of liquids, produce only these very same effects; and since, from mere inflammation of the pharynx and surrounding parts, the muscles of deglutition are sometimes thrown into violent spasms, and the suffering from this source is so great that even the offer of anything to be swallowed (and, of course, it is fluids only which are offered, on account of their being more easy to swallow), they produce the same effects even in a mere nervous state of the system. From a groundless apprehension of the disease the same circumstances may occur. It is certain, indeed, that many cases of these two descriptions have been mistaken for hydrophobia; but, in the mere inflammation of the organs of deglutition, the other—the great symptom—the extreme sensibility of the surface to the sudden impression of air, etc., is, of course, not present. Nor is it present in mere nervous irritability of those organs. When the spurious hydrophobia arises from mere apprehension of the disease, the fear of swallowing only is complained of, as it is this which is vulgarly known as the chief characteristic of the disease, and there is no morbid irritability of the surface to the impression of air. Indeed, there is a mere inability to swallow, without that sudden catching of the breath which I have described. There is also in this disease a *general* morbid irritability, so that the patient is, from time to time, in a violent passion, bordering on frenzy; he is perhaps abusive, and even attempts to injure those about him, but in a moment again is calm, and apologises for his conduct, as this boy actually did. The degree of passion probably depends in some measure upon the natural temper; the rage of this boy was ungovernable, and I stated to you having learnt that he was always a very violent and cruel fellow. There is also a general anguish of the mind; he is the subject of extreme alarm and suspicion, and the countenance of this boy fully expressed this. On my seeing him the second time, which was on the Friday, about two hours before he died, he unfortunately mistook me for the gentleman who had raised the blister upon his breast, and he instantly fell into the most violent passion, threatening me dreadfully, attempting to get out of bed for the purpose of attacking me, tossing himself about, gnashing his teeth, and, at the same time, evidently suffering indescribable anguish. His countenance bore, at the moment of which I am speaking, such an impression of rage and despair, that he reminded me forcibly of the pictures of persons tormented in the infernal regions. Patients not merely apologise afterwards for their violence, but frequently request by-standers to get out of their way, or to restrain them lest any one should be injured. They will, in the true disease, generally make, too, the greatest possible efforts to overcome the difficulty of swallowing, and although they many times put the cup from their lips, their courage failing after they have promised to attempt to swallow, they will frequently at last, as in this case, by great effort, open the mouth, throw the head back, and gulp down considerable draughts of fluid in violent haste, even in the midst of their greatest difficulty of swallowing. The patient showed the common symptom of extreme suspicion; whenever the door was open he looked anxiously forward, and showed the greatest aversion to every new comer. There is sometimes even a little

delusion in these cases; patients will fancy they see a mad animal in the room, or insects crawling about them; and a patient of Dr. Marcet's complained of an intolerable stench.

Before the Thursday on which the disease distinctly showed itself, it appeared that premonitory symptoms existed for three or four days. Usually, I believe, there are symptoms of weariness, general indisposition, dizziness, chills, and flushes; sometimes a pain has been felt in the bitten part. I think it very possible, from an occurrence which happened in my own practice, that these symptoms may go no further; that the disease, if I may so speak, may go off. Two little girls, standing at their father's door, were bitten by the same dog; a strange dog passing, snapped at both of them, and bit them both in the face. She who was bitten the second, became hydrophobic and died. The other, at exactly the same time, experienced the same premonitory symptoms as her sister, heaviness, and general indisposition, but they all went off. We know that in persons who have been exposed to the contagion of typhus fever and plague, a very slight attack sometimes takes place; so slight and short, that doubts might be entertained as to the nature of the disease. I had a friend who passed through a pestilential street in Constantinople, and afterwards visited a friend who was in perfect health, and in a part not exposed to danger. In a short time he felt ill for a certain number of hours, but was well again the next day; his friend, however, became equally ill, grew worse, and died. In inoculating the vaccine or small-pox virus, we sometimes see a very slight and imperfect form of either disease; gonorrhœa, also, is, frequently, after exposure to its cause, most slight and temporary.

The duration of the disease, when distinctly formed, generally varies from rather less than twenty-four hours, to six or seven days. I have had two patients with it, both little girls, and each died in less than 24 hours: the present patient died in rather less than six-and-thirty. The difference does not depend upon age, because two American cases are recorded, the one of a person under four, the other of a person 73 years old, who each lived six or seven days. The greater number, however, die on the second, third, or, at the latest, the fourth day. The suddenness of the present death was nothing more than has been frequently observed. Patients sink in general at last very rapidly, and often die before it is expected. Some time before this patient died, his feebleness was found to be extreme, notwithstanding the great excitement under which he appeared to labour, and, I presume, that the suddenness of his death arose, in a great measure, from the extraordinary violence which he had not long before manifested, in dashing from his bed, and driving all the by-standers from the room. You will also recollect, that during the ten minutes before his death, the countenance had undergone a considerable change,—had become livid and congested, and that the temporal artery could scarcely be felt.

The cause of the disease in the human subject has always, probably, been the morbid secretion from the mouth of a rabid animal, either of the dog or cat kind. I do not know that it is proved whether the poison resides in the saliva itself, or in the mucus of the mouth; nor do I know that the disease has ever been produced by the blood or any other fluids than those of the mouth. It has been ascertained by Magendie, that the fluids from the mouth of a human being will produce it in a dog; and I believe that the fluid will not produce the disease in brute or man, unless a wound or abrasion of the surface exists. Celius Aurelianus tells of a woman who had the disease after biting her threads in mending a garment that had been torn by a mad dog; but if it be meant that she had no abrasion of the lips or fingers, the story is calculated to remind one of Baron Munchausen's cloak, which itself became mad in the wardrobe, after having been torn by a rabid dog. In this patient, the period which elapsed after the communication of the poison, was probably about three or four months; the average time, I believe, is from six weeks to three months. It has been said sometimes to take place in six or seven days, sometimes not for nine or nineteen months; and in one case, we are told, that it did not occur for twelve years, so that some think this case, related by Dr. Bardsley, of Manchester, spontaneous; others suppose them to be spurious. Dr. Parry thinks the shortest well-recorded period is twenty-three days, and I believe it rarely extends to more than nine months. The same periods have been observed in the case of dogs. When Lord Fitzwilliam's hounds were bitten, the intervals varied from six weeks to six months. In spurious cases of the disease from mere fear, the interval is frequently very short. In that mentioned by Celius Aurelianus, the woman became hydrophobic only three days after biting her threads. Happily, most persons that are bitten escape. John Hunter mentions the circumstance of twenty-one persons having been bitten, and yet one only caught the disease, although no cautions were taken to prevent it. Dr. Vaughan, the father, I believe, of Sir Henry Halford, mentions an instance of thirty-one persons having been bitten, of whom only one caught the disease, although some did nothing, and the rest may be well said to have done no

more, as a part of them merely took the "Ormskirk medicine," and the rest a dip in the sea. Much depends upon the part which is bitten; for if the bite be inflicted upon a naked part, such as the face or hand, the disease is infinitely more likely to occur than if inflicted through the clothes, which, of course, wipe the teeth in their passage to the body. Dr. Parry mentions several sheep and dogs bitten, not one amongst the former of which took it, and of the latter only two, one of which two, I may mention, was bitten just before, and the other just after all the sheep. I believe that sheep will take the disease; I have myself seen it in a cow which was bitten by a dog, but I do not know that it originates, *de novo*, in any but an animal of the dog or cat kind. In these, it and its poison will certainly form without communication with an individual already labouring under the disease; it is necessary to remember, that we have numerous instances of dogs imparting the disease to human beings at a time when there was no reason to believe the dogs mad,—when they bit with a cause, that is, on account of being vexed, or have merely licked an abraded or cracked portion of the skin in fondness; and that sometime afterwards, perhaps even after the person so bitten or licked has gone rabid, the disease has appeared in the animal; and on this account, I think that every dog to which the least suspicion attaches, ought to be instantly destroyed. I, myself, almost dread to play with *any* dog, after the horrid scenes of hydrophobia which I have so often witnessed, and which are sufficient to make any one think it unjustifiable to keep a single dog that is not indispensably useful.

Some authors have asserted, that when communicated by a cat, the disease is of a different character; that there is merely tremor, agitation, with great restlessness, rapidity of pulse, and extreme debility, little or no difficulty of swallowing, and little morbid sensibility of the surface. I certainly saw an instance of this kind in the hospital four years ago: an individual had been bitten six weeks previously by a strange cat, which appeared to be mad. He had forgotten the circumstance, but he was in this state of agitation, and died in two days. However, cases of the most marked and regular *hydrophobia* occur from the bites of cats.

Perhaps you will be surprised when I tell you that some persons actually doubt the existence of this disease, ascribing the whole to fear. Yet you see it is as decided and distinct in its character as any disease in the nosology; it has arisen also often in children who never heard of the disease, and frequently in persons who had entirely forgotten having been bitten; I have seen it in children. This boy denied having received any bite, and seemed quite indifferent on the matter. A case occurred to Mr. Godrich of the Fulham Road, in which the patient, an old man, died after having received a bite, and exhibited all the characters of the disease, and not for one moment during its continuance was he aware of the nature of his complaint. An attempt at proof has been made by one surgeon inoculating himself with the slaver of a rabid dog; but this escape, you will see, was nothing more than the occurrence of a common fact, and proved nothing. If he were to inoculate himself again, and twenty of his relations, I should be happy to know the result. You will remember that Desgenettes inoculated the plague with impunity, and yet he saw quite enough, independently of this, to convince him that its contagiousness was true. Dr. White inoculated himself with the matter of plague, convinced that it was not contagious, and fell a victim to the disease. Two students of Paris were convinced that syphilis was not contagious, and so each inoculated himself, and had so trimming a disease for his pains that one of them actually committed suicide in despair.

With respect to *treatment*, it may be very well to wash the part thoroughly with a solution of the chloride of soda or lime; it may be very well to apply cupping-glasses at first; but I confess I should not be satisfied unless I removed the whole part bitten, even should this cost a limb. Those drugs which have been thought preventives, have acquired their reputation solely from the disease occurring comparatively so seldom after the infliction of bites by rabid animals; unless, indeed, the *guaco* be not an exception to this. The guaco must indeed be confessed to have failed to cure in this instance, though we are not justified in saying that it will not prevent. The cow-pock will not cure the small-pox, but in the larger number of cases it prevents that complaint, and where it does not prevent, in the greater number of cases it renders the latter much milder. There is no reasoning on these points; experience only can determine. Moreover, although the guaco failed, those gentlemen who attended closely to the case, felt satisfied that the patient experienced, at first, decided temporary relief after every dose. Mr. Cæsar Hawkins also informed me that he exhibited the remedy to a rabid dog, and that a decided intermission of the symptoms, although they had been very violent, took place for a number of hours. Still, however, it is to be remembered that remissions, and even intermissions, have occasionally been observed in the disease, both when nothing has been done, and when various other remedies have been given. I must here express my gratification

at the conduct of Mr. Cæsar Hawkins in supplying us with some extract which he had in his possession after the juice sent from the College was exhausted. The article is very scarce. Attached to another school, and himself engaged in experiments with the remedy, he showed no desire to keep the chance of successful investigation to himself, but the desire of a man of science and benevolence to further it, whosoever might reap the credit. The close attention of the students both night and day to the case in furthering the exertions of Dr. Roots, who visited the patient early in the morning, at noon, and at night, was also in the highest degree praiseworthy. They did so at some personal risk, for the boy in his rage more than once attempted to bite, to say nothing of his general violence. Some had his saliva on their hands, and one, I believe, got it in his eye; even the Gentleman who opened the body was unfortunate enough to wound himself; and I saw the wrist of the sister of the ward bleeding, so severely was it scratched by the boy in his efforts to prevent her from administering an injection.

The post-mortem examination threw no light upon the disease, nor could it be expected to do so. The affection is one evidently of the nervous system, and chiefly, it would be supposed, of that part of it which is connected with the organs of deglutition and respiration, and in the secretory apparatus of the mouth; and one, I think, evidently not of necessity inflammatory, though marks of inflammation have been found at the tuber annulare, medulla oblongata, and various other parts, and sometimes red patches on the stomach and in the air passages. In the present case, the medulla oblongata was rather softer than usual, and so were the corpora striata, and the thalami nervorum opticorum, but the middle lobes were likewise softened. The phrenic nerve and par vagum appeared perfectly healthy, as did the whole of the spinal marrow. The cardiac half of the stomach was redder than usual, but not redder than we continually see it after affections of the respiratory organs. The œsophagus was quite healthy. The larynx and adjoining parts, and the whole of the lungs, were in a state of congestion, and the corpse was that of one who died after struggling. The hands were clenched, and the lips turgid and blue. The heart was strongly contracted. The spasmodic attacks which took place were quite sufficient to cause the congestion observed in these parts, though, were they not so, the congestion would not explain the peculiar symptoms. We cannot hope to discover the nature of the disease by morbid anatomy, but by careful investigation of the symptoms during life. Whatever morbid anatomy can teach us of the nature of any disease, we are bound to learn. We are bound to note, every fact in morbid anatomy; but observation during life, of the symptoms, history, and causes of diseases, are the chief part of the basis of pathology.

THE LANCET.

London, Saturday, May 22, 1830.

Among the various speculations of profit and improvement to which the unsettled state of medical education has given origin, it is somewhat extraordinary that a preparatory school should not have been included. The omission is the more remarkable, when it is considered that the establishment of such an institution might have been readily suggested by analogy, was warranted by its obvious utility, and strongly recommended to public or private enterprise, by the emoluments likely to occur to its founders. We have, for example, schools intended for the elementary instruction of engineers, of painters, sculptors, and of naval and military heroes, to furnish the former with materials for the exercise of their art. If it be an object worthy of human concern to found establishments to teach the juvenile arm to wield the pencil, the chisel, and the sword, with success, of how much more importance should it not appear to rational beings, to found institutions for the preparatory education of a class of men whose lives, though devoted from the earliest infancy to the task, would be far too short for the acquisition of a science, of all others confessedly the most extensive in its details, and useful to mankind? In every instance, we believe, in which the experiment has been tried, of infantile initiation in those pursuits in which the matured student is to be engaged, the results, as might from reason and the experience of the world have been anticipated, have fully justified the undertaking. In all those arts, indeed, which, from being indis-

pensable, must be exercised by a great multitude of individuals possessed, of course, of different capacities, there can be no question of the propriety of attempting, by early education, to compensate for inequality of talent, and to produce an uniformity of excellence as far as it is in the power of cultivation to supply it. Whoever has been conversant in the affairs of medical schools, and has observed the character of those by whom they are usually attended, must have perceived in their deficiencies a melancholy example of the effects of the absence of this principle in the preparatory studies of medical students. Let us take the facts which are annually presented in those medical schools in which classical knowledge is still insisted on as a preliminary qualification to the attainment of diplomas for practice, and we shall have at once the most abundant data for the illustration of our remarks. The quantum of classical information, which is required in these establishments, as every person is aware, is but small indeed; yet we speak from actual observation when we assert, that we have seen pupils more embarrassed about the learning of even this modicum of the learned languages, than about the more important objects of their medical studies. Usually, as much time, in fact, is spent by these martyrs to the neglect of early education, in preparing themselves to translate a page or two of "Gregory's Conspectus," as for answering questions on the theory and practice of their profession at an examination. There is something sadly ludicrous in exhibitions of this kind, which have too frequently come under our notice at the great schools. What, for instance, can be more pitiful or ridiculous, than to see a man of perhaps forty years of age sit down before a pedagogue, or professor of "medical Latin," to parse a page of Cullen, or "get up" by rote a series of answers in the style of old Corderius? There is, surely, in spectacles of this description, a discordance of pursuits,—a miscellany of the occupations of youth, and the avocations proper to maturer years,—a medley, in short, of incompatible labours, which, though it must excite a smile, is well calculated to produce in the mind of every spectator, the serious conviction, that too little attention has been hitherto bestowed on the elementary education of the practitioners of medicine, in a country where such scenes are of constant occurrence. We need not, however, penetrate the sanctuary of the "grinder," or put his learned gravity to the blush, by raising the veil from his incongruous occupations, for every newspaper and wrapper of a medical journal presents disreputable testimony of the truth of these remarks, to the public attention. Taking up one of these, ten chances to one but the first announcement that meets our eye, will be an invitation to purchase an "Interlinear Translation," that modern discovery of "a royal road" to classical knowledge; or, as it may be, to a course of "prelections on medical Latin," to prepare young gentlemen for examinations at Apothecaries' Hall, and the Halls of Oxford; for, as matters now stand, about the same quantity of classical information is required at both. Such intimations are fearful satires on the medical profession; for what must any person, with any pretension to classical knowledge, think of a grade of men for whom these newspaper baits are intended? But the question naturally presents itself here;—Is the retention of classical information, as a preliminary to graduation in medicine, really requisite? Much controversy has at all times existed on this subject, owing, as we think, to that fertile source of dispute, a misunderstanding and improper use of terms. By one party it has been maintained, that this species of knowledge is *necessary*; by another that it is of no *use* whatever. The object of the dispute is here obviously misstated, and the opinions founded on it are the consequences of the error. Classical knowledge has un-

doubtedly no *necessary* connexion either with the study or the practice of medicine, both of which can be accomplished without its aid; but it does not follow that because it is not absolutely *necessary*, it is of no value as an auxiliary branch of education, and should be altogether discarded from the course of medical studies prescribed for students in the healing art. Besides its abstract value in learning medical science, as we shall show presently, there are considerations with respect to the successful exercise of that science, which renders a knowledge of the classics indispensable. We do not, by the specific value of this species of information, allude to the quantum of knowledge contained in, and what may be collected from, works written in the dead languages: there are few of these which might not be safely dispensed with in the practice of medicine, or if considered essential to the completion of medical education, the object so far might be equally well secured by perusing them through the *medium* of translation. Our observation refers more immediately to that improvement of the mind produced by the study of the literature of our predecessors in civilisation, the perusal of which stores the mind with much useful knowledge, and fits the faculties for observation and reflection on indifferent subjects. Every exercitation of the mind, and accession of new ideas, enable the mind the better to comprehend and overcome new difficulties in intellectual pursuits. It is to this beneficial influence of classical erudition that our remarks are more particularly directed, and on which we would take our ground against those who are opposed to its cultivation among the students of medicine. Those at least who are best acquainted with the learned languages of antiquity, and with the advantages which they confer, will be found the last to consent to their proscription, from any new code of laws which might be proposed for the regulation of medical studies. But it is quite idle ever to dream of such an exclusion; as classical literature is likely to form an integral part of a liberal education in these countries for ever, medical men must, as a matter of self-defence, keep pace with the acquisitions of those for whom they prescribe, and by whose patronage they can alone advance themselves in the world. Patrons of medical men, in fact, whether public or private, as often judge of the qualifications of their clients by miscellaneous as by professional information; and as classical knowledge is that in which they are most conversant, it becomes a sort of standard with them for estimating the practitioner's proficiency in his proper avocations. It is certain, however, that classical learning in the manner, and to the amount in which it is now taught in our ordinary schools, is of comparatively little value to the medical student, to that which it might be made under a different system of instruction. Place, for example, a Celsus or Hippocrates in the hands of a "first-form" pupil of any of our public seminaries, and we will venture to say that he does not proceed to the fourth sentence of a passage in either, when his previous knowledge of classics totally fails him. To comprehend the meaning of these authors, he would have to learn a new vocabulary; for the phrases and technicalities with which they abound, are no where to be met with among the works usually read in our schools. As conducing, therefore, to facilitate the study of medicine, the present mode of classical instruction may be considered extremely defective, and, of course, requiring an entire alteration. A total revolution, therefore, in the preparatory education of persons intended for the medical profession, is, we conceive, imperatively demanded by the few facts which we have just produced. What that plan of elementary education should be, which might embrace the advantages of a purely classical course of studies with professional information, we shall point out on some future occasion.

THE KING.

The public naturally look into medical journals for information respecting the King's health, and many correspondents express astonishment at our having so long remained silent on the subject of the malady, by which His Majesty has been recently afflicted. Unfortunately, the generality of medical journalists have no other source of information upon this subject, than that which is open to the public, namely, the bulletins of His Majesty's medical attendants. The following list comprises the whole of those documents which have been issued up to the present time.

"Windsor Castle, April 15.

"We regret to state that the King has had a bilious attack, accompanied by an embarrassment in breathing. His Majesty, although free from fever, is languid and weak."

"Windsor Castle, April 19, 1830.

"His Majesty continues to suffer occasionally from attacks of embarrassment in his breathing."

"Windsor Castle, April 22.

"The King is better."

"Windsor Castle, April 24.

"His Majesty has passed two good nights, and continues better."

"Windsor Castle, April 26,
9 o'clock A.M.

"The state of the King's health continues much the same. His Majesty has had a good night."

"Windsor Castle, April 27,
half past 10 A.M.

"The King continued as well as his Majesty has been for several days past until this morning, when his Majesty experienced a return of the embarrassment of his breathing. His Majesty is now again better."

"Windsor Castle, April 28,
11 o'clock A.M.

"The King has suffered less from the attacks of embarrassment in his breathing since our report of yesterday, and his Majesty has passed a good night."

"Windsor Castle, April 29.

"The King continues much in the same state, with occasional embarrassment in his Majesty's breathing."

"Windsor Castle, April 30.

"The King had several hours of refreshing sleep last night. His Majesty's symptoms are somewhat alleviated."

"Windsor Castle, May 1.

"The King felt himself better all yesterday, but his Majesty has passed but an indifferent night."

"Windsor Castle, May 2.

"The King's symptoms have not varied. His Majesty has passed another bad night."

"Windsor Castle, May 3.

"The King has suffered much by a want of sleep; nevertheless, his Majesty's symptoms are mitigated this morning."

"Windsor Castle, May 4.

"The King slept some hours last night, and his Majesty feels himself rather better this morning."

"Windsor Castle, May 5.

"The King continues much the same. His Majesty has passed a comfortable night."

"Windsor Castle, May 6.

"The King has passed the whole of yesterday comfortably. His Majesty's symptoms were mitigated, but his Majesty has passed a bad night."

"Windsor Castle, May 7, 1830.

"The King has passed the last twenty-four hours under a continued mitigation of his symptoms."

"Windsor Castle, May 8.

"The King has had a comfortable night, with some hours' sleep. His Majesty's symptoms continue the same."

"Windsor Castle, May 9.

"The King has passed a tranquil night. His Majesty's symptoms are essentially the same."

"Windsor Castle, May 10.

"The King passed yesterday evening, and the night, in composure, with some sleep, but his Majesty's symptoms remain the same."

"Windsor Castle, May 11, 1830.

"His Majesty's symptoms are not materially mitigated, but his Majesty had some sleep last night.

"Windsor Castle, May 12.

"The King has passed a disturbed night. His Majesty's symptoms continue the same.'

"Windsor Castle, May 13.

"The King has passed a more comfortable night. The symptoms of his Majesty's complaint, however, do not vary."

"Windsor Castle, May 14.

"The King continues in the same state. His Majesty has had a bad night."

"Windsor Castle, May 15, 1830.

"The King has had some refreshing

sleep, and his Majesty feels himself rather better."

"Windsor Castle, May 16, 1830.

"The King has not had a very good night, but still his Majesty's feels himself better."

"Windsor Castle, May 17, 1830.

"The King has passed a good night; his Majesty's symptoms are alleviated."

"Windsor Castle, May 18.

"The King has passed a tranquil night. His Majesty's symptoms are all alleviated."

"Windsor Castle, May 19, 1830.

"The King slept well last night. His Majesty's symptoms continue mitigated."

"May 20, 1830.

"The King has passed a good night. His Majesty's symptoms continue to improve."

Upon reading these bulletins, one is naturally led to inquire, for what purpose they have been issued; because they are utterly and entirely destitute of information, not only as to the state of danger to which the King has been exposed, and of the degree of suffering which His Majesty has endured, but there is a total silence upon the *nature*, or even of the supposed *name* of the disease, from which our Sovereign has suffered so severe an attack. As to the "bilious" attack, the expression is so vague and old-womanish, that nothing can be inferred from it unless we assume that there was a wilful attempt to delude or deceive on the part of the writer. But His Majesty has suffered considerably from "embarrassment in his breathing." Embarrassment in breathing is only the *symptom* of a disease; yet, not a word is mentioned of the complaint by which this sign has been produced. Embarrassment in breathing may result from a diseased brain, a diseased spine, a diseased throat, a diseased heart, diseased lungs, a diseased liver, and, in fact, from severe disease in any part of the body. Indeed, "embarrassment in breathing" is one of the last, and, but too frequently, one of the worst and surest signs of approaching dissolution. Thus, whilst it is commonly the immediate precursor of death, it is a no less frequent attendant upon the most trifling aberrations from health, and often follows an indulgence in the luxuries of the table. Inflammation of the heart, and too abundant a meal, will, alike, therefore, produce "embarrassment in breathing." What, then, can we learn from the language of the bulletins? Nothing. It being universally acknowledged that these documents are issued for the purpose of conveying to the people of England, information respecting the nature and danger of the King's malady, we are forced to conclude, that the persons who dictated them, are either incapable of communicating that information, or that it has been wilfully withheld. In either case such persons, we should think, are not the most proper to surround the person of the Sovereign, especially at a moment when the royal mind may be in a state bordering upon incapacity from the tortures of bodily disease. If His Majesty's physicians be not incompetent to convey the information which the public have a right to expect, and even to demand, by whose orders, or from what influence do they systematically attempt to delude or mystify? The King has a right, undoubtedly, to select the medical officers by whom he will be attended. His Majesty has a right to choose his ministers of State, and they are responsible to the nation for their conduct. But here there are other considerations besides the right to select. First, we know of no tribunal to which the medical officers are amenable, for their incapacity; and, secondly, is a man, when enduring the agonies of disease, in a condition of mind best calculated for making the most judicious selection? Of the incompetency of Sir Henry Halford and Sir Matthew Tierney, we do not speak, for we will not be so uncharitable as to decide upon their medical attainments from the terms of their bulletins. Sir H. Halford is, unquestionably, a very respectable gentleman, but we have yet to learn that he has found a position amongst the scientific physicians of Europe. Of Sir M. Tierney

we know nothing; he may have contributed to the stock of medical knowledge; he may have been successful in the career of private practice; but upon each of these points we are equally in the dark. Laying aside then, for the moment, the consideration of superior medical attainments, may we not infer that these physicians were capable of recording a plain statement of facts? and, giving them credit for this, if it can be shown that they have refrained from alluding to highly important circumstances connected with his Majesty's disease, and with which, it is self-evident, they were well acquainted,—if, we say, it can be proved that they have wilfully withheld very important information upon one point, may we not fairly conclude that they have done so upon many others, or, indeed, upon all? For the bulletins are destitute of even a particle of medical statement that is worth recording. That one very important piece of information has been withheld, there can be no doubt, as the legs of the royal sufferer were punctured, in order to of allow the escape of a dropsical effusion. Not a word of this in the bulletins. No mention even of swelling in the legs, much less of effusion in the extremities, arising from organic disease in the ———. It is known, however, that his Majesty has submitted to the dangerous, and often fatal, operation of "puncturing" for the removal of fluid effused in the legs and feet. Yet no mention is made in the bulletins of there having been a surgeon in attendance; in truth, there is not the slightest allusion to the operation; and had not the vanity of the operator conquered his discretion, the fact of the "puncturing" would, probably, have been unknown to the public, even to the present hour. A surgical operation then, even a *dangerous* surgical operation—for mortification is often the result—has been performed. Yet the name of a surgeon has not been attached to either of the bulletins. The secrecy is deep, but what are the motives? The history of the magical tactics of the great *magician* may one day furnish an explanation. The extraordinary benefit, both medical and surgical, rendered to the late Duke of York by his Majesty's Sergeant-Surgeon, Sir Astley Cooper, is well known to the members of the medical profession, and even to a large portion of the public. Yet "the conjurer" on *this* occasion, directed his wand to another quarter, and summoned to his aid a more convenient spirit; one that could be concealed or exhibited, as the changes of the disease, and the "turns" of the consul market, might seem to require.

If we mistake not, a "stock account," to be found in the books of a certain confidential broker, is always the surest guide to the state of his Majesty's health. It fluctuates with the variations of the royal pulse. Here we shall stop for the present; but the whole affair is one of vast importance to the country, and demands a scrutinizing investigation in Parliament.

It affords us great satisfaction to be enabled to state, that the health of his Majesty is much improved. Unhappily, however, there are still the evidences of danger.

Principles of Military Surgery; comprising Observations on the Arrangement, Police, and Practice of Hospitals; and on the History, Treatment, and Anomalies of Variola and Syphilis. By John Hennen, M.D., F.R.S., Inspector of Military Hospitals. Third Edition. London. John Wilson. 1830. 8vo. pp. 584.

It would appear, from the ancient profane writers, that military surgery was considered the most honourable department of the medical profession amongst the Greeks, and skill in the treatment of wounds was an important item in the accomplishments of a military chief. This fact may be accounted for, on reflecting that as war was the only source of power, those who were most subject to its injuries, were the most influential men. The practitioner who was directly useful to princes and generals, acquired a greater share of rewards and honours than

he whose office it was to administer aid to to the women and children; hence was derived the superiority of the military over the civil practitioner.

Amongst the Romans, and probably amongst the Greeks, in a more luxurious age, this distinction did not obtain in so marked a degree, and medical men, generally, were not so highly respected. In the dark ages, and even after the revival of learning, the practice of surgery was confined to the dregs of the people. It was not before the fifteenth century that field-surgeons came into any note; they were principally attached to general officers, and although not obliged to act as combatants, received a certain portion of booty and prisoners.

"The field surgeon of Henry the Fifth of England (Nicholas Colnet), received a yearly sum of forty marks, in addition to his share of plunder; but Nicholas had to furnish three archers, and if his booty exceeded twenty pounds, he was to give up one-third to his majesty."

In a letter written by a military officer, in the reign of Queen Elizabeth, the following passage may tend to show the estimation in which army-surgeons were held in the days of that sovereign:—

"Every captain of one hundred footmen doth receive weekly, upon every Saturday, his full entertainment of twenty-eight shillings; in like case, every lieutenant fourteen, and ensign seven; our sergeant, *surgeon*, drum, and fife, five shillings pay, by way of impreat; and every common soldier three shillings, delivered to all by the poll, weekly. *To the four last lower officers*, two shillings weekly; and for every common soldier, twenty-pence weekly is to be answered, to the full value thereof, in good apparel of different kinds."

The institution of the more permanent establishments for invalids first took place at Constantinople, in the end of the eleventh century. In those times the knights attended the sick and wounded themselves, compounding balsams and vulnerary drinks for them with great spirit and perseverance, although with no pretensions to scientific accuracy, for, according to Guy de Chauliac, they trusted to exorcisms, beverages, oil, wool, and cabbage-leaves! The regular physicians and surgeons took the duties of the hospitals on themselves, in the beginning of the fifteenth century, and were guided by a code of written regulations, and principles rather more scientific.

To Henri Quatre, military surgery is much indebted for the establishment of field hospitals, and the encouragement which he afforded to surgeons. Ambrose Paré, the surgeon and counsellor of this great monarch, was one of the earliest and best of army surgeons. He followed the French armies, which he first joined at Turin 1536, in all their operations, down to the battle of Moncontour in 1569, which is the latest date mentioned in the history of his campaigns. All the works of this eminent surgeon were collected and published together, by Guillemeau at Paris, in 1582. A number of continental surgical authors followed in the career of Paré, but none of them attained to any great celebrity.

The earliest English military author is Thomas Gale, who served as a surgeon in the army of Henry VIII., at Montreuil in 1544; and also in that of King Philip of Spain, at St. Quintin, 1557. He published the *Institution of a Chirurgeon*, and also other tracts, and a *Treatise on Gunshot Wounds*, London, 1563, 8vo. The general state of military surgery was, however, deplorable in his day; tinkers, cobblers, and the most humble practitioners of the veterinary art, forming a part of the surgical attendants on the army in the field.

William Clowes, Peter Lowe, John Woodall, Richard Wiseman, John Brown, and John Ranby, successively wrote on military surgery, and some slight improvement is ascertainable in their works. Within the last century, however, no work of great merit, written in the English language, came out on the subject until the appearance of John Hunter's *Treatise on the Blood, Inflammation, and Gunshot Wounds*. This great work was posthumous, and published in 1794.

Of living authors, J. and C. Bell, Hennen, and Thompson, have been the most distinguished amongst the English. Mr. Guthrie has also written copiously on the subject. On the Continent, the works of Percy, Larrey, Asselini, and Paroisse, are highly valuable. But an introduction to the principles of military surgery, calculated to assist the student, was a desideratum, until the work of Dr. Hennen, the third edition of which is now before us, first appeared. We have perused

the book with great care and much pleasure, and wish to recommend to our readers the study of an author who, during a life of active service in the field, has acquired a consummate knowledge of his art. After an introductory chapter, in which the rise and progress of this branch of the profession are traced to the period of his writing; plain and simple directions are afforded to the young surgeon, under the head of "preparatory measures," where a source of supply for all his wants is pointed out. Adequately equipped with furniture and material, he is at once introduced on the field of battle, and numerous facts relative to the course of balls and their effects on the different parts of the body and the constitution generally, are demonstrated. The important question of primary amputations is then discussed; this is followed by remarks on the immediate treatment of fractures, sabre-cuts, contusions, and gun-shot wounds, in which the writer evinces an intimate and practical acquaintance with his subject.

We are conducted from the field to the receiving hospitals, and are furnished with directions for their construction and arrangement; the means of ventilation, and the various implements necessary to the fulfilment of the surgeon's intentions. The building being prepared, the reception, classification, and government of the inmates are the next questions, and disposed of in the same masterly style as the preceding. The reader is next led to the consideration of "dressings and general medical treatment," and the best principles which physiology justifies are inculcated, and many excellent observations on the effects of climate, situation, and previous habits, are afforded. The first treatment of cases, on their reception from the field, is also considered, and a case narrated, illustrative of the benefits accruing from scarification.

The Doctor having located the young surgeon in the receiving hospital, proceeds to the consideration of the principles to be observed in the extraction of foreign bodies, where he deprecates too much interference. He then treats of the effects of contusions, and other serious injuries, from shot and shell; of injuries of the bones, and their consequent diseases, splinters, exfoliations, and complicated fractures; afterwards injuries of the joints, with their concomitant and consequent effects; wounds of blood-vessels and nerves. All these subjects are illustrated by a series of highly interesting and original cases.

Many instructive remarks are next afforded, with respect to general affections of the system from wounds, supported as heretofore with cases, and accompanied with useful directions as to the mode of treatment. We then have successive chapters on "hospital gangrene," "mortification," and "tetanus;" and particularly a chapter on amputation, in which are amply discussed the cases of its propriety, the mode of its performance on different parts, its occasional sequelæ, and the other treatment.

Dr. Hennen, up to this point, considers military injuries as affecting the body generally; he now descends to treat of the injuries of particular parts, and furnishes a series of admirable essays on injuries of the head, face, neck, throat, chest, and abdomen, which include a perhaps unrivalled collection of cases.

The chapter on the examination of recruits, and on medical topography, will be highly useful to the youthful and inexperienced surgeon; and that on feigned diseases contains matter important to every medical man connected with charitable, and other public establishments. It requires great natural shrewdness, toil, and experience, to detect the simulations frequently practised by impostors.

The observations on variola and vaccinia, offer nothing particularly worthy of notice. The essay on syphilis, which concludes the work, appears to have occupied much of the author's attention, and is evidently considered by him as the most valuable part. In this, however, we are disposed to differ from him; he affords, it is true, some curious historical details, and the mode of practice which he has adopted, indicates that sound judgment which seems to characterise him. He leans to the adoption of the non-mercurial treatment in many forms of the disease, and seems to entertain nearly the same views as Rose, Carmichael, and Guthrie. His tables of the comparative results of the two modes of treatment are drawn up with great skill and perfect impartiality. We are sorry to observe a man of Dr. Hennen's solid acquirements descend to flatter the literary self-sufficiency of the soi-disant

"modern Athenians." We trust the editor will, in his next edition, omit all his fanfaronade touching the "intellectual city." Not to part, however, *animo iratо*, from an author who has afforded us so much substantial pleasure, we shall terminate this article with the following quotation:—

"At the termination of a series of wars, which, for a large portion of a century, have desolated the fairest regions of the European world, and drenched their fields in blood, the medical philanthropist will naturally ask, what results have accrued from such ample sources of experience? What progress has been made in softening the miseries of pain and disease, and in extracting from such multitudes of victims, antidotes to the waste of human life? The younger practitioner also, who may enter the service of his country, will inquire, Where am I to collect the fruit of that experience with which so many campaigns have enriched my predecessors? and how, if the opportunities come within my reach, am I best to avail myself of them? It is, in some degree, to answer these interrogatories, that I have ventured to make the following observations. In arranging them, I have carefully availed myself of the written and oral remarks of the best army surgeons, both domestic and foreign, to whose works or conversation I have had access, or who have had more experience than myself. I have studiously avoided controversial discussions, where they could lead to no practical results; and theory, unsupported by experience, I have altogether rejected; well-knowing how much the young practitioner has to unlearn at the patient's bedside, when he comes there fraught with opinions acquired from books or lectures only. With this in view, I have given the accompanying cases, nearly as they were taken down in large hospitals or private practice, without, however, embarrassing them with trivial diurnal occurrences, which would only have enlarged the narrative, without adding to its value."

Although this book professes to treat solely of "military surgery," every reflecting reader will perceive, that the principles which it inculcates must be applicable, with slight modification, to the cases incidental to private life; and that a knowledge of its contents cannot be otherwise than useful to the surgeon practising in the mining and manufacturing districts, where injuries, analogous to those of war, are constantly occurring. To the military surgeon it is indispensable, since it is replete with information, derivable from no other source.

LONDON UNIVERSITY.

DISTRIBUTION OF PRIZES.

The ceremony of distributing prizes to the students of this Institution at the close of the session, as a testimony of high acquirements, took place amongst the medical classes, in one of the large theatres, on Saturday morning, the 15th inst., and was attended by many hundred spectators,—noble, professional, and lay. The forms observed by the warden and professors, were similar to those of last year.

The Chair, on this occasion, was filled with peculiar grace and dignity by Sir James Graham, whose very classical, appropriate, and varied addresses to the different students on presenting them with the rewards, fairly divided with the pupils the admiration and applause of the audience. The scene was one highly exciting to the students, and gratifying to their friends, and certainly tends to the production of great public advantage. Less of the effect, however, could not have well been owing to the public exertions of the professors, whatever was due to the pains they had taken in private. The observations which fell from them were given in so insignificant a tone, that, with the exception of those of Dr. Thomson, it was with difficulty even the Chairman could catch their import. This deficiency in a body of professed orators, before a large assembly, was certainly very disadvantageous.

The following are the names of the successful candidates for the medals:—

In Professor Thomson's Class (Materia Medica and Therapeutics—140 students).

Gold Medal.—Mr. T. Bidwell, of Penzance.

First Silver Medal.—Mr. P. Hulme, of Edge, Manchester.

Second Silver Medal.—Mr. T. F. Cheetham, of London.

In Professor Conolly's (Nature and Treatment of Diseases—106 students).

Gold Medal.—Mr. F. R. Taylor, of Tortola.

First Silver Medal.—Mr. H. O. Stephens, of Bristol.

Second Silver Medal.—Mr. R. Garner, of Staffordshire.

In Professor Pattison's (Anatomy—179 students).

Gold Medal.—Mr. E. Merrion, of Rye, Sussex.

First Silver Medal.—Mr. H. Cooper, of Tranby, near Hull.

Second Silver Medal.—Mr. T. Bidwell, of Penzance.

In Professor Bell's (Physiology — 148 students).

Gold Medal.—Mr. W. Evans, of Dryclough, Lancashire.

First Silver Medal.—Mr. H. Cooper, of Tranby, near Hull.

Second Silver Medal.—Mr. T. G. Wright, of Stockton upon-Tees.

In Professor Bell's (Surgery — 96 students).

Gold Medal.—Mr. R. Garner, of Staffordshire.

First Silver Medal.—Mr. W. Evans, of Dryclough, Lancashire.

Second Silver Medal.—Mr. H. Cooper, of Tranby, near Hull.

In Professor Davis's (Midwifery).

Gold Medal.—Mr. F. R. Taylor, of Tortola.

First Silver Medal.—Mr. T. Wakefield, of Judd Place.

Second Silver Medal.—Mr. T. G. Wright, of Stockton-upon-Tees.

In Professor Turner's (Chemistry — 181 students).

Gold Medal. — Mr. J. N. Huddleston, George Street, Euston Square.

First Silver Medal.—Mr. J. P. Wall, of Hertfordshire.

Second Silver Medal.—Mr. W. Cooks, of Warwick.

In Professor Grant's (Comparative Anatomy).

Gold Medal.—Mr. N. Esdell, of Twyford.

First Silver Medal.—Mr. E. Blackmore, of Manchester.

Second Silver Medal. — Mr. Benjamin Philipps.

In the Class of J. R. Bennett, Esq. (Practical Anatomy—172 students).

Gold Medal.—Mr. E. J. Queckett, of Langport, Somersetshire.

First Silver Medal.—Mr. C. Nelson, of Lees.

Second Silver Medal.—Mr. Blackmore, of Manchester.

In each of the above classes, certificates of honour were granted to many who had not succeeded in obtaining medals. The second silver medal, in the class of "Nature and Treatment of Diseases," was awarded to Mr. M. Richards, of Norwood; the first silver medal in the physiological class, and the second silver medal in the class of comparative anatomy, to Mr. R. Garner, of Staffordshire; but these gentlemen having gained the same prizes last year, the medals were bestowed upon the students next in merit to them, whose names are given above.

In the course of the proceedings, reference was made to an intention which exists of granting medical diplomas in the University. The following document has been issued by the Council, explanatory of its views on this subject:—

"MEDICAL DIPLOMA.

"In the 'Second Statement by the Council,' published before the opening of the University in 1828, it is announced that, 'besides certificates of the professors, the University will grant certificates of general proficiency in literature and science. Every student will be required to produce a certain number of Professors' certificates, before he can be allowed to enter upon the examination for the general certificate.' The object in granting this certificate, is to put the student in possession of a document which shall be an evidence of his having acquired at the University a certain amount of knowledge in the different departments of general and professional education. But to make the document practically useful, it must have such a designation as the person obtaining it can conveniently affix to his name and be called by; as is the case when he takes a degree at an incorporated university. The Council have been for some time engaged in considering the qualifications, conditions, and the form under which this diploma shall be granted in the different departments of education; they have not yet settled what these shall be in any other than the medical school, but expect to be able to announce the whole scheme before the conclusion of the present session. Having come to a decision upon the medical diploma, the Council have thought it advisable to make it known, before the medical students of the present session shall be dispersed. It has been resolved that the general university certificate shall be granted in the medical school under the following conditions and regulations, and that it shall be called 'The Diploma of Master of Medicine and Surgery in the University of London,' (which may be thus translated and abbreviated, M. Med. et Chir. U. L.)

"1. That the candidate shall be twenty-one years of age. 2. That he shall have attended lectures on professional subjects, during three academical sessions of this University; or two sessions at this University, and one winter session of at least five months' duration in any established school at home or abroad. 3. That he shall have acquired certificates of honour* in the

"* It is proper to explain to those unacquainted with the system of the University, that certificates of honour are granted at the conclusion of each session to the more distinguished students in the several classes. The distinction is conferred, if answers in writing to questions proposed during a very

following classes in the University:—Practice of Medicine; Anatomy; Physiology; Surgery; Midwifery, and Diseases of Women and Children; Materia Medica; Botany; Chemistry; and Anatominal Demonstrations and Dissections. 4. That, in the year which may be spent out of the University, he shall have attended lectures on two different professional subjects, each course of such lectures being of at least five months' duration. 5. That he shall have attended the medical practice of an hospital, containing at least 100 beds, for twelve months; and the surgical practice of the same hospital, or another hospital of the same number of beds, for the like period of twelve months. 6. That he shall be required to translate a passage in writing from Celsus, Gregory, Heberden, or other Latin medical author. 7. That having complied with the preceding regulations, he shall write an essay in the English language on some professional subject, chosen by himself, and approved of by the faculty of medicine before the essay is composed. That this essay shall be read in whole or in part, as the faculty may desire, at a public meeting in the University; and that the candidate shall be called upon to explain or defend the doctrines maintained in his essay. That he shall also make an anatomical demonstration, and be examined upon any part of his professional studies on which the faculty of medicine may think proper to propose questions.

"In proposing the above regulations for conferring an honorary distinction, suited to surgeons and general practitioners, the Council have thought it proper to require attendance on those classes only which are necessary for obtaining the diploma of the College of Surgeons of London, and Society of Apothecaries. But they are desirous that the attention of medical students should also be particularly directed to the subjects of clinical medicine, comparative anatomy, and medical jurisprudence: and it will also be a great recommendation to candidates that they should possess some knowledge of mathematics, natural philosophy, and natural history. The scheme of instruction in the University affords ample opportunity for such studies; and a diligent pupil, during the period prescribed by the regulations, may obtain respectable knowledge in several of these departments, without interfering with the more direct object of his pursuits. The diploma will be conferred in public on the 23rd of December in each year, or the 22nd, if the 23rd be a Sunday; and the examinations will commence on the corresponding day of the preceding week. The essay must be sent to the secretary of the Faculty of Medicine on or before the 15th of November, and must be signed by the candidate, with a declaration that it is wholly his own composition. In the event of students leaving England, or in other cases of emergency, the diploma will be granted at other periods of the session, if the candidates possess the necessary qualifications. In selecting the designation, care has been taken to avoid all interference with the titles and privileges conferred by chartered bodies. The value of the diploma to the possessor of it will depend upon its being known to be granted to those only who, after a strict examination, prove themselves worthy of such a distinction.

"The following extract from a report of the Faculty of Medicine, contains their views as to the good effects upon the education of medical students which this measure may tend to produce:—'The medical profession is divided into three classes: viz. physicians surgeons, and general practitioners. The latter form by far the greater body, and until this University can give a physician's degree, not many of those destined for that branch of the profession can be expected to take any considerable part of their education in its medical school. Under the appellation of general practitioners are included two distinct classes of medical men. One of these consists of practitioners who hold a highly respectable rank in the profession, and who have devoted much time, labour, and money to their professional education; men possessed of some attainments in the collateral sciences, and who, practising their profession in a liberal and scientific spirit, have the highest claim to the confidence of the public. Another class bearing the same appellation, consists of those who have acquired the right to practise by possessing only the *minimum* of knowledge by which the licence can be obtained, earned by the smallest possible expenditure of time and labour, and who consequently have very imperfect professional attainments. The public possess so little knowledge of the details of a medical and surgical education, that all the most serious duties of the profession are commonly confided, without inquiry, to any one who calls himself a general practitioner, and to such hands, especially in the country, the largest portion of professional duty and responsibility is entrusted. It becomes, therefore, a great duty for the University to endeavour to remedy the evil, as far as it has the means of doing so, by holding out this honorary distinction as encouragement to general practitioners to follow such a more extended course of study

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carefully conducted examination, shall prove that the student must have diligently attended to the instruction of the professor.

as the science they profess, and as the public interest require.'"

"(By order of the Council.)

"LEONARD HORNER, *Warden.*

"University of London,

"April 24, 1830."

We fear there is something wrong in the management of the pecuniary affairs of the University; and as we have, at different times, said much on the subject of this Institution, we feel it our duty to insert the following letter, addressed last week by Mr. HUME to the editor of one of the daily papers:—

"Bryanstone Square, April 15.

"MY DEAR SIR,—I request you will state to the Council, at its first meeting, my wish to have my name withdrawn from the list, as it is not my intention to attend their deliberations in future. I wish to give no offence in stating, that the wide difference of opinion between the majority of the Council and myself, as to the expenses of the University, is the cause of my withdrawing, as I am unwilling to appear to sanction measures which, if persevered in, will, I fear, bring ruin upon the institution.

"I remain yours, sincerely,

"JOSEPH HUME.

"To Leonard Horner, Esq., Warden of the London University."

LONDON MEDICAL SOCIETY.

FOTHERGILIAN PRIZE.

To the Editor of THE LANCET.

SIR,—Allow me, through the medium of your Journal, to put two questions to the Registrar of the London Medical Society.

In the advertisement of the Society, inserted last year in *The Times*, respecting the Fothergilian Prize, it was stated that the medal should be adjudged to the successful candidate at the meeting previous to the celebration of the anniversary, and that it should be presented to him by the President at the annual feast. The first question, therefore, I would ask the Registrar is, why has not this promise been fulfilled, and why have the candidates as yet heard nothing of it?

Secondly, will he be so good, if it be not too much trouble, to inform the *medical* public, through the pages of your universally-circulated Journal, what is the subject proposed for this year's prize? It does appear to me very strange, that such a notice as the above should be inserted in a newspaper amidst a crowd of advertisements for "Board and Lodging," "Washing done," "Apartments to Let," &c. &c.

Mr. *Editor*, one question to you. Will you have the goodness to look into the business of this prize, and the principles of its adjudication? you will, by so doing, very much oblige

A CANDIDATE FOR THE LAST YEAR'S PRIZE.

London, May, 1830.

ABUSES AT ST. THOMAS'S HOSPITAL.

To the Editor of THE LANCET.

SIR,—I am obliged to "A Pupil" for his letter in No. 347 of THE LANCET. He has briefly, but sufficiently, exposed the source of part of the abuses to which I endeavoured to call attention. Mr. Nash, *the steward*, not only neglects his duties, but, like many other *subordinates* in public institutions, conducts himself with an air of indecorous and presumptuous authority. He, *the steward*, forsooth, "should not allow" what is ordered by a physician! This is a cheering and encouraging prospect for patients, and highly complimentary to the good taste and proper feeling of those, whose influence this *servant* of St. Thomas's should *feel*, if he does not respect. I can, and do fully appreciate Dr Elliotson's dignified and charitable forbearance. I trust it is not misapplied, and that it will operate as it ought. Perhaps some of Mr. Green's pupils could afford light as to the quarter whence arose disobedience to his orders.

It is my belief (and I have some knowledge of hospitals and dispensaries, both in this metropolis and Edinburgh) that the irregularity and carelessness of the medical officers of public institutions, are but too often copied by their inferiors. A little Lancetizing may remove, or at least diminish, the plethora of importance and power assumed by these gentlemen. With the sole desire of promoting all salutary reforms in our hospitals, I address you.

AN INVALID

Subscriber to THE LANCET.

London, May 6th, 1830.

ERRATUM.

To the Editor of THE LANCET.

SIR,—In your last number, the entire meaning of my communication is obscured by an error of the compositor. I have, therefore, to request its readers to substitute the word *risking* for "*resigning*."

I am, Sir, your obedient servant,

JAMES SCOTT.

May 17th, 1830.

HOTEL DIEU.

CONGENITAL DISLOCATION OF THE HIPS.

CASTEL, æt. 74, had been admitted in February, 1828, on account of catarrhus vesicæ. His lower extremities offered a very unusual peculiarity, the real nature of which was, however, not clearly made out before his death, which took place in the course of the year, from marasmus and the disease in the bladder. During the patient's life it had been remarked, that his thighs were remarkably short, the trochanters very high, rather distant from the ossa ilei, and more than usually prominent. The nates were flat and unusually broad; the cutaneous fold between them and the thighs was much higher than usual. The position of the feet also presented some of the signs of dislocation upwards and outwards; the toes were turned in, and the legs could be separated from each other only for a very short distance. The adductor muscles formed a considerable prominence under the skin, which was the more obvious, as the limbs were much emaciated. When the individual walked, the abdomen was much protruded; the head and shoulders were held back, in order to counterbalance the weight of the trunk; he was scarcely able to bend the hips on the pelvis, and accordingly walked very slowly. The patient being very closely examined by M. Dupuytren, asserted that, according to his recollection, he had always been afflicted in the manner described above, and that a surgeon of Rochelle, who had been consulted, had said that the deformity was congenital. The following is the result of the post-mortem examination:—The glutæus maximus muscle was much wasted, its fibres were separated, and on moving the thighs in various directions, no sort of tension was caused in them; the glutæus minimus had almost entirely disappeared; the glutæus medius only was of its natural size and colour, and its upper aponeurosis was partially ossified. The other muscles were pushed upwards and outwards, especially the quadratus, the external insertion of which was much higher than the internal. The direction of the psoas and iliacus muscles was consequently first outwards, then backwards, and, lastly, upwards, to the point of their insertion into the small trochanter. The ossa ilei were very convex exteriorly, and their cristæ more than usually turned inwards, the fossæ iliacæ very deep. The antero-posterior diameter of the pelvis was only two inches; the transverse at least nine; the distance between the trochanters was fourteen inches. The left cotyloid cavity was of an oval form, rather superficial, and filled with a yellowish fatty substance, and in its stead there was a large depression in the external fossa iliaca before the ischiatic notch, covered with a layer of cartilage; the head of the thigh-bone was lying in this new socket, and fixed to it by means of a fibrous capsule, which was inserted at the margins of the natural cavity, but being three inches in length, was of a sufficient size to admit of the ascent of the bone to its present situation. The parietes of this capsule were cartilaginous, and two lines in thickness. There was no trace of the ligamentum teres. On the right side the cotyloid cavity was a little larger, and filled with a similar fatty matter to that in the left; the new socket, which was rather deep and large, and had an uneven edge, was between the two anterior spinæ ilei, in front of the ischiatic notch. The capsule was attached partly to the old and partly to the new socket; it was much thinner than on the left side. The last lumbar vertebra was partly dislocated from the sacrum, the ligaments being extremely relaxed.

LITERARY INTELLIGENCE.

A second edition of Price's Abstract of the Medicine Stamp Act, with the legal interpretations of the clauses, &c., is in the press. It contains upwards of seven hundred articles, in addition to the old schedule, many of which will subject dispensing surgeons to double penalties, if not licensed to deal in nostrums.

BOOKS FOR REVIEW.

A Popular Description of the Aldinian Defensive Dresses, &c., for Rescuing Human Life and Property from injury or destruction in cases of Fire. London, Ridgway, 1830. pp. 24.

Cholera, its Nature, Cause, and Treatment; with original views in relation to Fever and the action of Poisons on the System. With an Essay on Vital Temperature and Nervous Energy, &c. By Charles Searle, Surgeon, Hon. E. I. C. Madras Estab. London, Wilson, 1830. 8vo. pp. 255.

Remarks on Nervous and Mental Disorder, with especial reference to recent Investigations on the subject of Insanity. By David Uwins, M.D. London, Underwoods. 1830, pp. 41.

Modern Medicine influenced by Morbid Anatomy; an Oration, delivered at the Fifty-seventh Anniversary of the Medical Society of London; also, an Apology for Medical Nomenclature. By Leonard Stewart, M.D. London, Longman, 1830. pp. 55.

The "Stingo" next week.